

DOCUMENT RESUME

ED 273 747

CE 044 804

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TITLE The Comprehensive Competencies Program Reference Manual. Volume I. Introduction.
INSTITUTION Remediation and Training Inst., Washington, DC.
PUB DATE 86
NOTE 268p.
PUB TYPE Guides - Non-Classroom Use (055) -- Reference Materials - General (130)

EDRS PRICE MF01/PC11 Plus Postage.
DESCRIPTORS *Adult Education; *Basic Skills; Competency Based Education; Computer Assisted Instruction; Cost Effectiveness; *Daily Living Skills; *Experiential Learning; *Individualized Instruction; Job Training; Pacing; Program Descriptions; *Program Development; Program Effectiveness; Program Implementation; Reference Materials; Surveys

IDENTIFIERS *Comprehensive Competencies Program

ABSTRACT

Chapter 1 of this reference manual is a summary of the comprehensive competencies program (CCP). It describes this system for organizing, implementing, managing, and efficiently delivering individualized self-paced instruction, combined with group and experience-based learning activities, using computer-assisted instruction. (The CCP covers not only academic objectives spanning the beginning to the postsecondary level but also a comprehensive array of functional objectives considered vital for adult performance in society, the home, and the marketplace.) Applications, use, and learner achievement are discussed. Chapter 2 presents results of a survey of CCP learners to determine perceptions of the CCP approach and its effectiveness. Questions regarding CCP are answered in chapter 3. They pertain to use, reason for CCP development, and effectiveness of CCP components. Chapter 4 is an overview of the CCP. Topics include content, rationale, and strengths and limitations. Focus of chapter 5 is the CCP as a cost-effective approach to basic skills instruction. (Chapter 6, entitled "A Business Approach to Social Programming," is under development and therefore not included in this document.) Chapter 7 highlights the structure, format, and use of the CCP. It provides a matrix which suggests the CCP's organizational schema, discusses the elements, and describes movement through the CCP. Other contents of chapter 7 include sample CCP materials. (YLB)

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COMPREHENSIVE COMPETENCIES PROGRAM

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THE COMPREHENSIVE COMPETENCIES PROGRAM REFERENCE MANUAL

VOLUME I

INTRODUCTION

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THE COMPREHENSIVE COMPETENCIES PROGRAM

The Comprehensive Competencies Program: A Summary

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THE COMPREHENSIVE COMPETENCIES PROGRAM:

A SUMMARY

Robert Taggart

July 1986

A Tool To Address The Basic Skills Crisis

One of the most critical challenges facing our nation is to increase the basic skills of the American work force and citizenry by improving the quality, quantity and targeting of basic skills instruction in classrooms, communities and workplaces. An important mechanism for achieving this mission is the Comprehensive Competencies Program (CCP), developed by the Remediation and Training Institute with Ford Foundation support in 1983, prototyped, tested and finetuned in 1984, packaged for widespread dissemination in 1985, and now in use in community-based organizations, schools, corrections facilities and job training programs throughout the nation.

The CCP integrates the most successful educational approaches and materials developed over the last several decades into a system which can be implemented and operated cost-effectively in diverse settings to deliver individualized, competency-based instruction using state-of-the-art technologies. The learning system covers academic competencies--ranging from elementary reading and arithmetic, through high school and introductory

college-level science, mathematics, humanities, social studies and writing, as well as functional competencies determined necessary for success in the family, society and economy-- including job getting and holding, consumer skills, citizenship, health and community participation.

The CCP is based on a hierarchical framework of competency objectives organized into Academic and Functional Components. There are Basic, Intermediate and Advanced Tiers in both components, each spanning four Levels of difficulty in the Subject Strands within these tiers. The levels are divided into sequenced Units of related competency objectives, which, in turn, are subdivided into progressions of Lessons addressing very specific skills which can be mastered in a single learning period. (Summary Table 1)

To diagnose learner needs and to track competency attainment, the system includes 750 CCP Mastery Tests. Initial Locator Tests indicate whether beginning skills are basic, intermediate or advanced. Subject Strand and Tier Mastery Tests assess global competency. More focused Level Mastery Tests measure the skills covered by subsumed units, while short Unit Mastery Tests assess competency on the several very specific lesson objectives within each unit. The CCP Mastery Tests have parallel forms so they can be applied before and after instruction to measure gains. The test items are sectioned to address subsumed objectives sequentially, so that easily-calculated section subscores can diagnose the specific problems when total scores are inadequate. Using these CCP Mastery Tests, each learner can be simply and quickly assigned to instruction of appropriate difficulty in just those subject areas which have not been mastered. Each learner's progress through the hierarchy of competencies is documented by the associated results, while the aggregates for all learners document the output of the

instructional program and staff, thus providing consistent accountability.

For every "bite-sized" learning objective, CCP Lesson Assignments reference an array of print, audiovisual and computer-based learning materials identified through an exhaustive review of commercial and public sector courseware. The user has flexibility to incorporate any other preferred materials. Hundreds of individual and group exercises, as well as experience-based learning activities, are included with the system and referenced in the assignments as CCP Supplementary Activities. All materials and activities are referenced by alphanumeric identifiers so they can be easily located by learners who have only the most rudimentary skills. Each CCP Lesson Assignment specifies the pages, frames, tracks or sections of the material or activity which relate to the particular lesson objective. Most of the referenced segments contain their own mastery checks.

The CCP Information System gathers all the information needed for individual education planning and tracking, management of instructional activities and evaluation using just two, easy-to-maintain forms. It not only minimizes the paperwork and time required for planning, delivering and assessing individualized instruction, but integrates evaluation and management in day-to-day education delivery.

The five CCP Computer Systems for the Apple IIe automate test-scoring, lesson assignments, recordkeeping and reporting, analysis, management and even computer networking. These enormously powerful and flexible tools for teachers, managers and evaluators are so user-friendly they can be operated by individuals with no computer expertise.

Assistance is provided with the CCP to assure its successful implementation. Detailed CCP Reference Manuals and more

easily digestible CCP User Guides compile all the explanation, background and instructions needed by users. The CCP User Competency Component, structured just like the academic and functional components of the CCP, provides an individualized and self-paced staff training program supplemented by videotapes and "hands-on" activities. Practitioners are prepared and certified as CCP Technical Assistance Agents to help other users with their problems. During the careful planning process required before approval of the CCP Use Agreement which authorizes use of the system, the Remediation and Training Institute provides management and planning consultant services at no cost. With this help, it is possible for organizations with little or no basic skills instructional experience to implement and operate effective programs.

Continuing support and services are provided to assure effective use and continuing improvement. The CCP Users Network links practitioners through quarterly CCP User Bulletins, Surveys and Updates. A range of cost- and time-saving CCP User Services are provided by the Remediation and Training Institute, such as volume-purchase discounts on equipment and courseware. CCP Quarterly and Annual Use Reports and Reviews help to identify and correct problems. The comprehensive data which are collected quarterly from each user are analyzed by the Remediation and Training Institute to assess CCP and user effectiveness. The results are applied to refine the CCP in annual editions as well as to improve user performance from year to year.

Effective And Efficient Basic Skills Instruction

The CCP Learning Centers established with this system have been aptly characterized as the "high-tech equivalents of traditional one-room schoolhouses." While varying in size, inventory and institutional setting, they are all equipped with a variety of print and audiovisual materials spanning an array of subjects and ability levels, usually

supplemented by a mix of computer-assisted instructional courseware. The CCP Mastery Tests and Information System provide the means for determining where a learner should start, how fast he or she should progress, and when problems are encountered. The CCP Lesson Assignments provide menus for each prescribed learning objective, guiding the instructor and the learner to appropriate materials, including computer-assisted instruction disks, referenced and easily accessed by their identifiers. The CCP Computer Systems score tests instantaneously, record and analyze test results and participant records, permit customization and individualization of lesson assignments, provide spreadsheet and data-base management simplifying everyday learning center tasks, and even facilitate reporting and communication by computer modem.

The assignments, tests and computer systems are so simple that learners can maintain their own records, find their assignments, take and then score their own tests with only occasional help. Freed from lesson planning, and with automation of time-consuming activities such as test preparation and checking, recordkeeping and reporting, teachers can concentrate on one-on-one instruction whenever learners encounter problems in their individual work. With automated and simple procedures for diagnosis and prescription, with a diversity of materials addressing a comprehensive range of learning objectives, and with systems simplified so that learners are self-directed, a single teacher can work with a diverse group of learners, all pursuing different subjects at different levels as dictated by their individual needs.

Thus, a well-organized and managed CCP Learning Center delivers all the ingredients of effective education identified by education research:

* Individualized Instruction. Each learner can work on just what he or she needs at whatever pace is most comfortable.

* **Competency-Based Education.** Instruction can be flexibly scheduled to accommodate individual situations, with completion as rapidly as mastery is achieved.

* **Instructional Options.** There are different materials and media easily accessible to address a comprehensive array of instructional objectives so each learner's needs and learning style can be accommodated.

* **Self-Directed Learning.** Learners are given responsibility, choice and a substantial degree of control, enhancing their feeling of efficacy and their commitment.

* **Positive Reinforcement.** The organization of instruction into easily-mastered steps, and the frequent mastery tests documenting progress, provide recognition and reinforcement for learning achievements.

* **Accountability.** There is frequent feedback on the status of each learner so problems can be identified and addressed, with accountability for learning efforts and outcomes.

* **Maximum Time-On-Task.** Applied learning time or "time-on-task" is maximized since each learner works individually on appropriate materials, with little time lost to group disruptions or explanations.

* **One-On-One Attention.** Teachers and aides have the time and tools to provide one-on-one attention and assistance when needed.

* **Supportive Environment.** With individualized instruction, attention and accountability, a participant's learning or outside problems can be addressed without disrupting other learners, so a structured yet supportive learning environment can be maintained.

* **Work And Training Linkages.** With flexible scheduling of instruction and the competency-based approach, learning can be more easily linked with work, training and education

activities, so that learning is encouraged as a means to other ends.

As a result of incorporating all these success ingredients identified by education research, CCP Learning Centers have the potential to produce learning outputs far exceeding those of instructional alternatives not sharing these features. But this is only one side of the equation: CCP is designed and administered to improve implementation success and operational efficiency as much as educational effectiveness. Because instruction can be delivered to a diversity of learners simultaneously, class-size ability and subject groupings are unnecessary. This makes it easier to maintain full utilization of equipment, materials and staff. The CCP dramatically increases the productivity of instructional staff by simplifying tasks, by minimizing the need for lesson planning, test preparation and materials screening, by automating test-scoring, reporting and analysis, and by facilitating use of aides for many functions usually handled by teachers. As a result, a well-run and fully utilized CCP Learning Center can deliver quality instruction for as little as \$2.50-3.00 per instructional hour including all operating costs plus amortization of equipment and courseware investments.

Multi-Purpose Applications

CCP Learning Centers are extremely flexible as well as efficient. They can provide core instruction or serve as adjuncts to other education and training components. Instruction may be offered on a "drop-in" basis, scheduled a few hours a week, or assigned as a full-time activity. Participation can last from a few weeks to many months; it can even be sequenced over a multi-year period. Because the CCP is completely modular, any combination of its Components, Tiers, Subject Strands, Levels or Units can be implemented in a CCP Learning Center and assigned to a CCP

Learner. The system can operate with no advanced educational technologies, but makes it easy to use almost any intensity or mix of computers and audiovisual equipment.

The potential applications are diverse. CCP Learning Centers can serve dropout youth in combination with work or training and placement assistance; secondary and vocational students in remedial classes, school-to-work transition and summer work/education programs; college-bound youth and college students in college prep and in-college developmental education programs; young adults in military preparation activities; dislocated workers in public and private sector programs; adults and senior citizens in continuing education, adult basic education, and employment programs; offenders in correctional institutions and community treatment facilities; the handicapped in community-based and in-school remedial instruction programs; and even youngsters in pre-school activities.

CCP use can be initiated and supported under the Job Training Partnership Act, vocational rehabilitation, vocational education and union or employer job training. It can be part of state and local workfare and welfare efforts or Work Incentive and Head Start programs. It can be supported by adult basic education, public and private secondary and post-secondary school budgets and special federal and state education programs. CCP learning can be financed with corrections and mental health resources available for community or institutional treatment. Economic development, housing and recreation programs provide other funding options. Instruction can also be supported by foundations, corporations and individual sponsors, or delivered on a fee-for-service basis paid by learners or parents.

In summary, the CCP is a multi-purpose tool which can be used in almost any setting, for almost any learning population. A single CCP Learning Center can serve a

variety of learning purposes and populations concurrently, receiving funding from a multiplicity of sources. It can deliver basic skills instruction which combines all the ingredients determined critical for successful education, and yet operate with business-like efficiency. It can harness state-of-the-art technologies to improve management and instructional effectiveness, but also provides the resources and tools for individual attention and support.

Expanding Use

Since the prototype CCP Learning Center was implemented at the beginning of 1984, there has been dramatic growth in the CCP Users Network. At the end of the second quarter of 1986, there were 158 CCP Learning Centers either operational or being implemented, with an growth rate of 100 new centers annually. (Summary Table 2)

CCP Learning Centers, now in twenty-eight states and the District of Columbia, are targeted where they are needed most. Among those operational throughout the first quarter of 1986, three-fifths were in central cities and almost all the remainder were in rural areas. Three of five centers were situated in poverty neighborhoods suffering from unemployment rates above ten percent. (Summary Table 3)

CCP Learning Centers have significantly expanded our nation's basic skills instructional infrastructure. The typical center can deliver nearly fifty thousand learner hours of instruction in a year if all work tables and computer work stations are occupied during all open hours. With full utilization, the 158 CCP Learning Centers being implemented or already operational at the end of the second quarter of 1986 could potentially deliver over seven million hours of instruction annually. (Summary Table 4).

Because the implementation of a CCP Learning Center requires several months from approval of CCP use to first enrollment,

with another quarter or more for phase-up to steady-state enrollment levels, the increase in delivered instructional hours necessarily lags the growth of capacity. For instance, only 124 of the 158 organizations with CCP Use Agreements at the end of the second quarter of 1986 had started up operations by the end quarter, while only half of those which were operational had a full year's CCP experience. Full utilization of capacity-- keeping every workstation or desk in use during every open hour-- is an unattainable ideal because of absenteeism, class breaks, scheduling conflicts, contract and grant cycles, as well as the difficulties of securing and maintaining funding. Nevertheless, the instructional outputs of CCP Learning Centers are increasing dramatically, reaching an annualized level of 750,000 CCP instructional hours in the first quarter of 1986, with a cumulative total of 765,000 hours since the first centers opened in 1984. (Summary Table 5)

By the end of the first quarter of 1986, CCP Learning Centers were serving over 5000 learners weekly, and had provided instruction to a cumulative total of 13,700 individuals. (Summary Table 6)

The CCP has leveraged substantial and rapidly growing support for targeted basic skills instruction. The cumulative cash and in-kind investment in CCP Learning Centers operating or being implemented through the first quarter of 1986 was \$6.6 million. Annualized operating costs for those already open in the quarter were \$8.8 million. Cumulative outlays on CCP Learning Centers and their operation totalled \$15.4 million. (Summary Table 7)

The High-Tech One-Room Schoolhouses

The CCP has proved an effective tool for meeting the needs of diverse institutions. A fourth of the CCP Learning Centers operating in the first quarter of 1986 were located in regular secondary or post-secondary schools. Another

fourth were in alternative schools and adult basic education institutions. A fourth were located in nationally-networked community-based organizations including Opportunities Industrialization Centers, National Urban League and SER Jobs For Progress affiliates and 70001 Ltd. franchisees. A fifth were in local Job Training Partnership Act programs. Others were located in union halls, corrections institutions, recreation facilities and a potpourri of other settings. (Summary Table 8)

CCP Learning Centers have been customized to meet the different needs of these institutions and their learner populations. The centers vary significantly in almost every feature. For instance, the maximum capacity of the centers operating in the first quarter of 1986 ranged from 7 to 125, with one in ten accommodating over 45 learners at any point in time, but with a fifth accommodating 15 or fewer. Center sizes ranged from 120 to 3600 square feet, with a fifth encompassing over 2000 square feet while a fourth had less than 1000 square feet. The average CCP Learning Center occupied 1350 square feet and had a maximum capacity for 31 learners. (Summary Table 9)

These "one-room schoolhouses" may not be large, but they have the potential to deliver a substantial total of instructional if used to capacity year-round. CCP Learning Centers were open an average of 27 hours weekly during the first quarter of 1986, with a fifth open 35 hours or more. If utilized at capacity during all open hours, the typical CCP Learning Center could provide nearly 46,000 hours of instruction to learners annually, with a third of the centers capable of providing 50,000 or more hours of individual learning. (Summary Table 10)

The CCP Learning Centers definitely represent the "high tech" approach to education. Investments for hardware, courseware, furnishings and supplies averaged almost \$50,000 in the centers operating in the first quarter of 1986

(including the value of donations and existing inventory transferred to the centers). A third of the centers were established for less than \$35,000 while a fifth invested \$65,000 or more. Over half of CCP Learning Center investments were for computers and software, with only a fifth for more traditional print and audiovisual instructional materials. (Summary Table 11)

While computer-assisted instruction (CAI) is an option, most users have taken advantage of the potential offered by CCP to effectively integrate CAI and to use a range of hardware and courseware. All but one of the CCP Learning Centers operating in the first quarter of 1986 had computers available for instruction (in addition to the CCP Learning Center Workstation for operating the CCP Computer Systems). Centers averaged 8.3 instructional computer terminals, or one for every four learners at capacity. Almost all CCP Learning Centers were equipped with Apples, but there were many other types of computers as well. Three-fourths of centers used more than one type of hardware for instruction, and a third were equipped with three or more different types of computers. The centers were also equipped with a variety of audiovisual equipment, with most having tape recorders, plus 16MM and sound/filmstrip projectors. (Summary Table 12)

CCP Learning Centers are staffed to provide "high touch" along with "high tech." Centers operating in the first quarter of 1986 averaged 3.2 full-time equivalent staff, including a mean of 1.7 instructors and .8 aides or assistants, although a third of the centers operated with two or fewer full-time equivalent staff. (Summary Table 13)

These CCP Learning Center staff are modestly paid. The annual full-time equivalent salary and benefits of all instructors in the first quarter of 1986 averaged only \$22,000, or three-fourths of the mean for public school teachers in 1985. Aides averaged \$13,000 in annualized salary and benefits, while managers earned \$31,000. Where

public school teachers must spend several hours outside the classroom, as well as a large proportion of classroom time, preparing and checking tests, reviewing materials or completing grades and paperwork, four-fifths of all CCP staff hours are spent in the CCP Learning Center, and three-fifths of their time is spent instructing, counseling and directing learners. (Summary Table 14)

With instructors and aides present in the CCP Learning Centers over ninety percent of their working hours, the student/teacher ratios are quite low. For centers operating in the first quarter of 1986, the learner/instructor ratio would have been 20-to-1 if centers were filled to maximum capacity during all open hours, while the ratio of learners to instructors plus aides would have been 11-to-1. But with utilization below capacity, the actual ratio of CCP instructional hours to instructor learning center work hours was less than 4-to-1, so that one-on-one attention could be provided. (Summary Table 15)

Combining "high tech" with "high touch" does not come cheap. The annual operating costs of CCP Learning Centers open in the first quarter of 1986 averaged \$82,800 excluding amortization of investments, with staff salaries and fringes accounting for three-fourths of the total. Including two-year amortization of CCP Learning Center investments at a 10% interest rate, total annual costs averaged \$111,400. (Summary Table 16)

CCP Learning Centers are able to compete successfully for funding. Centers operating in the first quarter of 1986 received an annualized average of \$122,000 in cash grants or contracts plus in-kind contributions, more than covering operating costs and rapid amortization of investments. Support came from a variety of public and private sources, with the Job Training Partnership Act accounting for three-fifths of the total. (Summary Table 17)

Learners And Learning Activities

Since the individualized, self-paced approach of the CCP facilitates service to a range of learners, and since the substantial courseware and computer investment can only be justified if instructional equipment and materials are adequately utilized, CCP Learning Centers are encouraged to maximize capacity utilization by diversifying target groups and funding sources. Over half of centers operating in the first quarter of 1986 had two or more distinct "use activities." Most had activities concentrating on intermediate academic competencies, but four-fifths had at least one activity whose participants concentrated on basic academic competencies, while over half had at least one college prep-oriented use activity. Three-fourths of CCP Learning Centers had one or more use activities concentrating on functional competencies, with occupational knowledge being the primary focus. (Summary Table 18)

In these varied use activities, CCP Learning Centers delivered an annualized average of 8400 CCP instructional hours in the first quarter of 1986. This is the time learners actually spent in the centers working on instructional materials and tests, or typically 85-90% of each attended hour in the CCP Learning Center. Half of the operating centers were in their first year of CCP use, and still phasing up enrollments; the second- or third-year users delivered half again as many hours of instruction. (Summary Table 19)

These CCP learning opportunities have been targeted to individuals with limited employment and education, very much in need of improved basic skills:

-- Three-fourths of CCP learners have come from poor families, three-fifths dependent on some form of welfare.

-- Two-thirds have been without a paycheck for a year or more; and half were totally outside the mainstream, with no work, school or training in the three months prior to entry.

-- One of three entrants was a migrant, a displaced homemaker, an offender or suffered from limited English proficiency or a handicap, while a fourth were single parents.

-- Half of learners were previous high school dropouts, and entrants averaged sixth-grade equivalent reading and math skills. (Summary Table 20)

CCP is generally used as a "quick fix" to help such individuals meet entry requirements for vocational training or work, to prepare them for the GED or college boards, to check the erosion of skills during the summer school vacations, or as a remedial supplement to other instruction. Hence, the duration of CCP participation has averaged only 11.8 weeks for terminees through the first quarter of 1986. During this enrollment, participants received a mean of 45 hours of CCP instruction, with only a third getting or needing more than 50 instructional hours. This CCP instruction is usually integrated with other activities. Seven of eight participants received vocational training, other education, work experience, counseling or other services, averaging twice as many hours in these activities as in CCP instruction. (Summary Table 21)

Reflecting the competency levels and needs of learners, the primary emphasis of instruction has been on intermediate competencies-- those at the fifth- through eighth-grade skill levels. Three-fifths of learners were assigned to the Intermediate Mathematics Subject Strand, and two-fifths to Specific Language Skills and to Developmental Reading. Nearly half of learners were assigned to one or more of the functional subjects, usually one of the Occupational

Knowledge Subject Strands addressing Job-getting and -holding competencies. (Summary Table 22)

Better Basic Skills

Learners completed an average of 2.8 CCP Levels, 2.0 in academic subjects and .8 in functional subjects. Nearly three-fourths of the completed levels were in academic subjects, with intermediate academics accounting for more than half of the total. Three-fifths of the completed functional levels were in one of the three Occupational Knowledge Subject Strands. (Summary Table 23)

Learners progressed not only relative to CCP competency measures, but also relative to external standards. Nearly a fourth of CCP terminees acquired a high school diploma or earned academic credit through CCP participation. One in ten acquired a GED prior to termination-- a quite significant proportion considering that of the 35% of CCP terminees who were dropouts at entry, less than two-fifths (representing 13 percent of all terminees) were assigned to GED prep, and recognizing that some learners who prepared for the GED undoubtedly acquired their certificate after leaving CCP. Over half were credited with demonstrating work maturity, and 5% completed vocational training while enrolled in CCP. (Summary Table 24)

According to nationally-normed tests, learners gained substantially and rapidly from their CCP participation. While learning gain rates have fluctuated from quarter to quarter reflecting changes in use activities (particularly, implementation of short-duration summer youth programs in the third quarter) as well as varying rates of start-up of new CCP Learning Centers, terminees gained an average of 1.1 grades in reading in 31 hours or realing instruction, and 1.6 grades in math in 28 math instructional hours. (Summary Table 25)

The "gain rate per 100 hours of related instruction" is the conventional metric for assessing effectiveness of basic skills instruction, with one grade level gain in each 100 hours of instruction in a subject the commonly-accepted success standard. Dividing total grade gains of CCP terminees by their total hours of related instruction (which yields a more conservative measure than the average of individual gain rates) the terminees gained 3.7 grades per 100 hours of reading instruction and 5.1 grades per 100 hours of math instruction. (Summary Table 26)

These extraordinarily high gain rates reflect the surge effect as forgotten skills are relearned. They also result because learners are striving to quickly meet entry standards for vocational training or jobs. Slower learners must remain longer to meet standards. Thus, terminees with less than 50 hours of reading advanced 1.2 grades, with a gain rate of 6.2 grades/100 hours of instruction; while those with over 100 hours of reading advanced a mean of 2.2 grades, or "just" 1.5 grades/100 hours of reading instruction. Likewise, the math gain rate for terminees with less than 50 hours of math instruction was 7.3 grades/100 instructional hours, compared to 1.3 for terminees with over 100 hours math instruction. The critical fact is that long-term participants continue to progress faster than the standard of one grade/100 hours. (Summary Table 27)

Substantial gains and gain rates were realized by even the most disadvantaged learners. Solo parents, welfare recipients, entrants reading below the seventh grade level, dropouts and minorities all achieved gains and gain rates in reading which were at least 90 percent of the average for all participants. The math gain rates of low readers and blacks were a fourth below the CCP average progress in math but still more than three times the success standard. (Summary Table 28)

Equally significant, almost all CCP Users have achieved laudable gains and gain rates despite differences in their target groups, institutional settings, use activities and learning center characteristics. In the fourth quarter of 1985, three of four CCP Learning Centers averaged more than one grade level improvement in reading and seven of ten averaged a grade or more improvement in math. Nine of ten centers averaged reading gains of more than a grade per 100 hours of related instruction, and all realized math gain rates exceeding this standard. (Summary Table 29)

Finally, this evidence from normed tests is reinforced by the overwhelmingly positive perceptions of learners:

- Four-fifths of respondents to the 1985 CCP Learner Survey felt they were learning faster in the CCP than in their last regular school; only one-in-twenty felt they were learning slower.

- Three-fourths liked their CCP Learning Center better than their last regular school and only one in ten liked it less.

- Nine of ten would recommend their CCP Learning Center to friends or relatives needing instruction.

- Nine of ten CCP learners felt less pressured and worked better at their own pace.

- Nine of ten claimed to work harder in the CCP Learning Center because they could progress as rapidly as they mastered needed skills.

- Nine of ten agreed that a good mix of instructional materials was available which helped their learning.

- Nine of ten agreed that their time in the CCP Learning Center was concentrated on learning with few interruptions.

- Nine of ten were positive about mastery tests and the accountability they provided.

-- Nine of ten felt they received more individual attention in the learning center than in their previous education activities. (Summary Table 30)

More Bang For The Basic Skills Buck

These documented learning gains and positive learner perceptions are not altogether surprising, nor are they proof of the relative merits of the CCP approach, since CCP Learning Centers are better equipped and more intensively staffed, hence, more expensive, than many instructional options. The critical question is whether the extra gains justify the extra care and costs to add these desirable elements through CCP. The answer is, unequivocally, yes.

The full CCP cost per instructional hour in the first quarter of 1986 was \$13.09. At the risk of unflattering comparisons with other education programs which usually ignore capital costs and in-kind contributions, this CCP unit cost measure appropriately includes an ascribed capital cost of \$3.28 per instructional hour to amortize the learning center equipment and courseware over two years assuming a 10% interest cost, as well as the \$3.40 imputed value of staff, space, equipment and courseware contributed in-kind to CCP Learning Centers. Using similarly conservative yet realistic definitions, CCP instructional hours are defined as the time learners are in the centers actually doing work, so CCP costs per hour are inflated relative to other basic skills instruction programs calculating costs on the basis of scheduled, rather than attended and applied, hours. Recognizing these differences in accounting conventions, there is no argument that CCP hourly costs exceed those of traditional education. For instance, public school operating costs averaged \$3200 per student in 1985, with capital costs adding \$400 more. With the typical school schedule consisting of 180 school days of five, 50-minute instructional periods, and an assumed

attendance rate of 80 percent, the cost per hour of attended instruction was \$6.00, or less than half the hourly cost of CCP instruction.

Yet the critical issue is not the cost per hour of instruction, but rather the cost per grade gained as a result. In public school, the "normal" student gains 1 grade level in a subject each year (though students like those entering CCP average only .7), or \$720 for each subject-specific gain. In CCP, learners advance a grade in 27 hours of reading instruction or in 20 hours of math instruction, translating into a cost per grade gain of \$353 for reading and \$257 for math, or an average of \$305. Thus, CCP instruction costs half as much per grade gained even though it costs twice as much per hour.

No doubt, CCP Learners gained rapidly because they were building on the foundation arduously laid year after year in school. Relearning is unquestionably easier than learning the first time around. As indicated, CCP gain rates decline with longer periods of instruction, and CCP is not intended as a substitute for a sound educational foundation. But even in comparison to remedial programs which also build on previous learning and aim to help individuals catch up or get ahead in as short a period as possible, the same holds true: The cost per grade gain output from CCP is far less even though its cost per instructional hour is greater. Adult basic education usually costs in the \$5.00-\$7.50 range, excluding facilities often provided in-kind. Basic skills components of job training programs typically cost more, \$7.50-\$10.00, because they target on the higher risk groups and may include counseling and other services. Studies suggest that adult basic education and job training programs usually achieve between .7 and 1.0 grade gains/100 hours in subject. Assuming low-end costs but high-end gains, these alternative basic skills instruction programs

cost fifty percent more than CCP for a grade improvement in reading, and almost twice as much for a grade gain in math.

Basic skills instruction is a profitable social investment, but particularly so with the CCP approach. Follow-up studies of a national sample of young Americans have found that all else being equal, a grade-equivalent increment in tested reading and math skills is associated with 4% higher earnings after school leaving. A grade-gain of reading and of math requiring 47 hours of CCP instruction costs \$600. For a typical out-of-school young adult, the five-year earnings increment associated with these improved skills would be \$1500, or two and a half times the cost. This does not include the payoff of the educational credential which is more likely to be achieved if skills are enhanced early, nor the value of reduced childbearing and crime which are highly correlated with better basic skills.

Moreover, the cost-effectiveness of CCP can and will increase. It is important to remember that 1985 was the first use year for half of CCP Learning Centers, and costs were inflated by the start-up expenses and underutilization during phase-up of new centers. The median total hourly cost of CCP instruction for centers operating in the first quarter of 1986 was \$13.89, but a third of centers had costs below \$9.00 per instructional hour, and the median cost would have been only \$2.47 if open hours capacity had been fully utilized. CCP Learning Centers in their first year of CCP use had total costs a tenth above those of longer-term users. (Summary Table 31)

Utilization increases with operating experience. CCP instructional hours in the first quarter of 1986 represented less than a fourth of aggregate open hours capacity of CCP Learning Centers. Those in their first year of CCP use had open hours capacity utilization rates two-fifths less than those with two or more years operating experience. (Summary Table 32)

While 100% use is not possible because of scheduling and transition factors, absenteeism and funding fluctuations, ten CCP Learning Centers achieved open hours capacity utilization rates of 50% or more. When all CCP Learning Center achieve 50 percent or better utilization, hourly instructional costs will be cut by more than half. Other economies are possible, with the fourth of centers having full utilization hourly costs below \$2.00 per hour offering lessons for the fourth with full utilization costs above \$5.00 per hour.

Greater efficiency and economy do not detract from educational effectiveness. On the contrary, the ten CCP Learning Centers with the highest capacity utilization rates in the first quarter of 1986 achieved academic grade gain rates a fourth above the CCP average, while the ten centers with the lowest hourly instructional costs achieved gains almost a fifth above average. In all CCP Learning Centers, the cost per grade gain averaged \$327. In the ten most fully utilized centers it averaged only \$136. In the ten most economical centers, the grade gain cost was just \$110. (Summary Table 33)

Costs and utilization rates are primary considerations in the CCP use planning and review process. The same factors figure prominently in the quarterly performance indicators ranking all CCP Learning Centers and determining whether the use authorization will be renewed from year to year. With full utilization, users can not only serve more learners, but can also generate net revenues to be used for additional investments, supportive services or other organizational needs. Hence, there is no doubt that average utilization will increase, and hourly instructional costs will decrease, multiplying the absolute and relative payoff of CCP.

In summary, the Comprehensive Competencies Program has proven itself as an effective and efficient tool for addressing our nation's basic skills crisis:

* CCP has been implemented successfully by diverse institutions in varied settings to serve many different learner populations.

* CCP has leveraged and target resources to provide learning opportunities where, and for whom, they are needed most.

* CCP has harnessed, disseminated and cost-effectively applied technologies for instruction and management.

* CCP has achieved consistently positive results, producing learning gains and gain rates far exceeding accepted success standards.

* CCP has effectively reached and served individuals who have failed in or been failed by other education programs.

* CCP has demonstrated that effective education can be delivered in a businesslike way, integrating research findings and careful evaluation.

* CCP has yielded a profitable rate of return on the social investment, with promise of an even greater payoff.

This success provides compelling arguments for expanding similar basic skills instruction activities in classrooms, communities and workplaces throughout the nation. It offers hope that the serious basic skills deficiencies of our work force and citizenry can and will be remedied.

Summary Table 1

COMPREHENSIVE COMPETENCIES PROGRAM ORGANIZATIONAL MATRIX

COMPONENT 1. ACADEMIC COMPETENCIES

TIER 1.1: BASIC ACADEMIC COMPETENCIES

	STRAND 1.1.1: BASIC MATHEMATICS	STRAND 1.1.2: READING FUNDAMENTALS
LEVEL 1	Addition	Reading Readiness
LEVEL 2	Subtraction	Elemental Reading Skills
LEVEL 3	Multiplication	Foundation Reading Skills
LEVEL 4	Division	Takeoff Reading Skills

TIER 1.2. INTERMEDIATE ACADEMIC COMPETENCIES

	STRAND 1.2.1: INTERMEDIATE MATHEMATICS	STRAND 1.2.2: DEVELOPMENTAL READING	STRAND 1.2.3: SPECIFIC LANGUAGE SKILLS	STRAND 1.2.4: INTEGRATED LANGUAGE SKILLS
LEVEL 1	Fractions	Grade 5 Reading	Specific Language Skills - 1	Integrated Language Skills - 1
LEVEL 2	Decimals And Percents	Grade 6 Reading	Specific Language Skills - 2	Integrated Language Skills - 2
LEVEL 3	Measurement	Grade 7 Reading	Specific Language Skills - 3	Integrated Language Skills - 3
LEVEL 4	Personal Math	Grade 8 Reading	Specific Language Skills - 4	Integrated Language Skills - 4

TIER 1.3: ADVANCED ACADEMIC COMPETENCIES

	STRAND 1.3.1: ADVANCED MATHEMATICS	STRAND 1.3.2: READING AND HUMANITIES	STRAND 1.3.3: WRITING	STRAND 1.3.4: SOCIAL STUDIES	STRAND 1.3.5: SCIENCE
LEVEL 1	Primary GEO	Primary GEO	Primary GEO	Primary GEO	Primary GEO
LEVEL 2	Comprehensive GEO	Comprehensive GEO	Comprehensive GEO	Comprehensive GEO	Comprehensive GEO
LEVEL 3	Primary College Prep	Primary College Prep	Primary College Prep	Primary College Prep	Primary College Prep
LEVEL 4	Comprehensive College Prep	Comprehensive College Prep	Comprehensive College Prep	Comprehensive College Prep	Comprehensive College Prep

Summary Table 1 (Continued)

COMPONENT 2. FUNCTIONAL COMPETENCIES

TIER 2.1: BASIC FUNCTIONAL COMPETENCIES

	STRAND 2.1.1: BASIC OCCUPATIONAL KNOWLEDGE	STRAND 2.1.2: COPING SKILLS
LEVEL 1	Career Choice	Independent Living
LEVEL 2	Job Search	Money Management
LEVEL 3	Job Getting	Food And Health
LEVEL 4	Job Holding	Government And Community Resources

TIER 2.2: INTERMEDIATE FUNCTIONAL COMPETENCIES

	STRAND 2.2.1: INTERMEDIATE OCCUPATIONAL KNOWLEDGE	STRAND 2.2.2: INTERMEDIATE CONSUMER ECONOMICS	STRAND 2.2.3: LIFE SKILLS
LEVEL 1	Career Choice	Budgeting	Independent Living
LEVEL 2	Job Search	Comparison Shopping	Family And Self
LEVEL 3	Job Getting	Banking, Credit And Insurance	Community Resources
LEVEL 4	Job Holding	Personal Possessions	Government And Law

TIER 2.3: ADVANCED FUNCTIONAL COMPETENCIES

	STRAND 2.3.1: ADVANCED OCCUPATIONAL KNOWLEDGE	STRAND 2.3.2: ADVANCED CONSUMER ECONOMICS	STRAND 2.3.3: GOVERNMENT AND LAW	STRAND 2.3.4: HEALTH	STRAND 2.3.5: COMMUNITY RESOURCES
LEVEL 1	Career Choice	Budgeting And Managing Resources	Government Structure And Functions	Preventive Care And Maintenance	Information Sources
LEVEL 2	Job Search	Comparison Shopping	Citizenship	Medical Care	Transportation
LEVEL 3	Job Getting	Banking, Credit, Taxes And Insurance	Law	Self And Family	Community Services
LEVEL 4	Job Holding	Possessions And Housing	Contracts And Documents	Parenting	Recreation Resources

Summary Table 2
NUMBER OF CCP LEARNING CENTERS

	Implementing/Operational	Operational
1984		
First Quarter	4	4
Second Quarter	7	7
Third Quarter	15	12
Fourth Quarter	46	38
1985		
First Quarter	57	46
Second Quarter	88	58
Third Quarter	107	79
Fourth Quarter	116	97
1986		
First Quarter	126	105
Second Quarter	158	124

Summary Table 3
DISTRIBUTION CCP LEARNING CENTERS

By State For CCP Learning Centers
Being Implemented Or Operating At End Of Second Quarter 1986

California	2	Michigan	9
Colorado	8	Mississippi	1
Connecticut	5	New York	11
District of Columbia	6	Ohio	20
Delaware	5	Oklahoma	1
Florida	1	Oregon	6
Georgia	1	Pennsylvania	1
Hawaii	9	Rhode Island	1
Idaho	1	South Carolina	1
Illinois	28	Texas	12
Indiana	3	Virginia	1
Louisiana	1	Washington	2
Maine	9	West Virginia	1
Maryland	3	Wisconsin	3
Massachusetts	6		

By Characteristics Of Area For
CCP Learning Centers Operating In First Quarter 1986

Type of Area	
Central City SMSA Over 1 Million Population	43%
Suburb SMSA Over 1 Million Population	1
Central City SMSA Under 1 Million Population	25
Suburb SMSA Under 1 Million	1
Rural Area	29
Income Of City/County	
Poor	24%
Middle	75
Affluent	1
Income Of Service Delivery Area	
Poor	62%
Middle	37
Affluent	1
Unemployment Rate Of City/County	
High - 10% Or More	26%
Middle - 6% To 9.9%	66
Low - Less Than 6.0%	8
Unemployment Rate Of Service Delivery Area	
High - 10% Or More	63%
Middle - 6% To 9.9%	29
Low - Less Than 6.0%	7

Summary Table 4

ANNUAL INSTRUCTIONAL CAPACITY OF CCP LEARNING CENTERS
Learner Capacity Times Annualized Open Hours
For Implementing And Operating CCP Learning Centers

1984	
First Quarter	184,000
Second Quarter	322,000
Third Quarter	689,000
Fourth Quarter	2,114,000
1985	
First Quarter	2,620,000
Second Quarter	4,044,000
Third Quarter	4,918,000
Fourth Quarter	5,331,000
1986	
First Quarter	5,791,000
Second Quarter	7,262,000

Summary Table 5

REPORTED CCP INSTRUCTIONAL HOURS

	During Quarter	Cumulative
1984		
First Quarter	6,500	6,500
Second Quarter	9,600	16,100
Third Quarter	16,400	32,500
Fourth Quarter	52,000	84,500
1985		
First Quarter	63,000	147,500
Second Quarter	106,300	253,800
Third Quarter	146,900	400,700
Fourth Quarter	178,600	579,300
1986		
First Quarter	186,600	765,900

Summary Table 6

CCP LEARNING CENTER ENROLLMENTS

	Participated During Quarter	Terminated During Quarter	Enrolled End Quarter	Cumulative Enrollment
1984				
First Quarter	310	45	265	310
Second Quarter	549	78	471	594
Third Quarter	941	133	808	1,064
Fourth Quarter	2,186	510	1,676	2,442
1985				
First Quarter	2,794	730	2,064	3,560
Second Quarter	2,957	1,220	1,737	4,453
Third Quarter	4,731	2,021	2,710	7,447
Fourth Quarter	5,240	1,693	3,547	9,977
1986				
First Quarter	7,254	2,211	5,043	13,684

Summary Table 7

CUMULATIVE CCP EXPENDITURES

	Investments	Operations	Total
1984			
First Quarter	\$200,000	\$78,000	\$278,000
Second Quarter	430,000	215,000	645,000
Third Quarter	638,000	449,000	1,087,000
Fourth Quarter	2,300,000	1,190,000	3,490,000
1985			
First Quarter	2,423,000	2,087,000	4,510,000
Second Quarter	3,740,000	3,158,000	6,898,000
Third Quarter	5,380,000	4,735,000	10,115,000
Fourth Quarter	5,880,000	6,748,000	12,628,000
1986			
First Quarter	6,592,000	8,787,000	15,379,000

Summary Table 8

INSTITUTIONAL SETTING OF CCP LEARNING CENTERS
CCP Learning Centers Operating In First Quarter 1986

Secondary And Vocational Public Schools	11%
Alternative Schools And Adult Education Centers	25
Post-Secondary Schools	12
Nationally-Networked Community-Based Organizations	25
Local Community-Based Organizations	6
Job Training Partnership Act Agencies/Job Corps	19
Corrections Institutions	1
Private Sector And Unions	2

Summary Table 9

SIZE AND LEARNER CAPACITY OF CCP LEARNING CENTERS
CCP Learning Centers Operating In First Quarter 1986

Maximum Learner Capacity

Mean	30.7
Median	30.0
Distribution	
15 Or Less	19%
16-25	27
26-35	20
36-45	26
Over 45	9

Space (Square Feet)

Mean	1354
Median	1280
Distribution	
500 Or Less	15%
501 - 750	10
751 - 1000	16
1001 - 1250	8
1251 - 1500	14
1501 - 2000	19
Over 2000	18

Space (Square Feet) / Learner Capacity

Mean	45.6
Median	42.9
Distribution	
25 Or Less	14%
25.1 - 35.0	15
35.1 - 45.0	28
45.1 - 55.0	22
Over 55.0	21

Summary Table 10

INSTRUCTIONAL CAPACITY OF CCP LEARNING CENTERS
CCP Learning Centers Operating In First Quarter 1986

Weekly Open Hours	Quarter Total/13
Mean	27.3
Median	26.2
Distribution	
Less Than 10	4%
10 < 15	2
15 < 20	16
20 < 25	22
25 < 30	22
30 < 35	13
35 < 40	13
40 Or More	7
Annual Open Hours Capacity	Open Hours Times
Maximum Capacity	
Mean	45,960
Median	37,152
Distribution	
Less Than 20,000	18%
20,000 - 30,000	15
30,000 - 40,000	24
40,000 - 50,000	14
50,000 - 60,000	13
60,000 - 100,000	11
Over 100,000	6

Summary Table 11

CCP LEARNING CENTER INVESTMENTS
CCP Learning Centers Operating In First Quarter 1986

Total Investment (Including Value Of In-Kind)	
Mean	\$49,600
Median	45,700
Distribution	
Less Than \$25,000	15%
\$25,000 - 34,999	19
\$35,000 - 44,999	14
\$45,000 - 54,999	15
\$55,000 - 64,999	19
\$65,000 - 74,999	11
\$75,000 And Over	7
Percent In-Kind	32%
Type Of Investment	Mean Median
Computers/Peripherals	\$20,600 \$15,500
Audiovisual Equipment	1,800 1,300
Print/Audiovisual Materials	10,600 11,300
Instructional Software	5,700 4,600
Supplies/Reproduction	2,800 2,300
Furnishings	4,300 3,200
Center Restoration	3,600 800

Summary Table 12

INSTRUCTIONAL EQUIPMENT IN CCP LEARNING CENTERS
CCP Learning Centers Operating In First Quarter 1986

Terminals Of All Types

Mean	8.3
Median	7.0
Distribution	
Less than 2	2%
3-4	14
5-6	26
7-8	24
9-10	8
11-12	7
13-14	7
15 Or More	12

Learners/Terminal When Learning Center Full

Mean	4.4
Median	3.3
Distribution	
Less Than 2	10%
2.0 - 2.9	21
3.0 - 3.9	28
4.0 - 4.9	6
5.0 - 5.9	14
6.0 - 6.9	5
7.0 And Over	15

Types of Computers

1 Type Only	27%
2 Types	39
3 Types	30
4 Or More Types	5

	Mean Number	Percent With
Apples	4.7	94%
TI/PLATO Micro	1.7	39
Sony/CCC Micro	.8	45
CDC/PLATO Micro	.3	7
PLATO Or CCC Network	.3	8
Other	.4	13

Types Of Audiovisual Equipment

	Mean Number	Percent With
Audio Tape Recorder	1.8	72%
16MM Cartidge Projector	1.0	66
Sound/Filmstrip Projector	1.0	64
Filmstrip Projector	.8	49
VHS/BETA Recorder	.2	15

Summary Table 13

STAFFING OF CCP LEARNING CENTERS
CCP Learning Centers Operating In First Quarter 1986

	Number	Full-Time Equivalents
Instructors/Counselors		
Mean	2.8	1.7
Median	2.0	1.3
Distribution		
0	0%	0%
.1 - 1.0	26	40
1.1 - 2.0	33	33
2.1 - 3.0	16	18
3.1 - 4.0	11	5
4.1 - 5.0	6	4
5.0 Or Greater	8	1
Aides/Assistants		
Mean	1.4	.8
Median	1.0	.7
Distribution		
0	21%	21%
.1 - 1.0	51	59
1.1 - 2.0	15	15
2.1 - 3.0	6	4
3.1 - 4.0	0	1
4.1 - 5.0	4	0
5.0 Or Greater	4	0
Managers/Planners		
Mean	1.3	.5
Median	1.0	.3
Distribution		
0	7%	7%
.1 - 1.0	66	85
1.1 - 2.0	24	6
2.1 - 3.0	1	2
3.1 - 4.0	2	0
4.1 - 5.0	0	0
5.0 Or Greater	0	0
Clerks/Secretaries		
Mean	1.6	.2
Median	1.0	.1
Distribution		
0	47%	47%
.1 - 1.0	51	52
1.1 - 2.0	2	1
2.1 - 3.0	0	0
3.1 - 4.0	0	0
4.1 - 5.0	0	0
5.0 Or Greater	0	0
Total Learning Center Staff		
Mean	6.0	3.2
Median	5.0	2.5
Distribution		
0	0%	0%
.1 - 1.0	1	2
1.1 - 2.0	12	32
2.1 - 3.0	15	31
3.1 - 4.0	20	11
4.1 - 5.0	24	13
5.0 Or Greater	38	11

Summary Table 14

CCP LEARNING CENTER WORK AND COMPENSATION
CCP Learning Centers Operating In First Quarter 1986

Full-Time Equivalent Staff Salaries And Benefits

	Instructors	Aides	Managers
Mean	\$21,877	\$13,206	\$31,291
Median	20,853	12,529	27,000
Distribution			
Less Than \$10,000	9%	39%	7%
10,000 - 14,999	13	31	7
15,000 - 19,999	23	15	12
20,000 - 24,999	28	15	21
25,000 - 29,999	14	0	12
30,000 - 34,999	14	0	13
35,000 And Over	9	0	30

Allocation Of CCP Work Hours

	Instructors	Aides	Managers	Total
In Learning Center	93%	92%	38%	80%
With Learner(s)	68%	60%	9%	59%
Doing Paperwork	15	27	15	17
Marketing/Managing	17	13	76	24

Summary Table 15

STUDENT/TEACHER RATIOS IN CCP LEARNING CENTERS
CCP Learning Centers Operating In First Quarter 1986

Ratio If Center Full (Capacity x Open Hours/ .9 x Staff Hours)	Learner/ Instructor	Learner/ Instructor + Aide
Mean	19.9	11.2
Median	15.0	9.2
Distribution		
Less Than 5.0	6%	13%
5.0 - 6.9	13	27
7.0 - 8.9	19	17
9.0 - 10.9	13	12
11.0 - 12.9	6	11
13.0 - 14.9	15	4
15.0 - 19.9	15	8
20.0 - 29.9	11	2
30.0 And Over	9	2
Operating Ratio (CCP Instructional Hours/ .9 x Staff Hours)	Instructor	Instructor + Aide
Mean	3.4	2.1
Median	2.1	1.7
Distribution		
Less Than 1.0	14	21
1.0 - 1.9	34	41
2.0 - 2.9	23	20
3.0 - 3.9	12	7
4.0 - 4.9	10	7
5.0 Or Greater	8	4

Summary Table 16

CCP LEARNING CENTER ANNUAL COSTS			
CCP Learning Centers Operating In First Quarter 1986			
Annualized Operating Costs Excluding Amortization			
Mean		\$82,756	
Median		64,756	
Distribution			
Less than \$40,000			21%
40,000 - 80,000			41
80,000 - 120,000			18
120,000 - 160,000			10
Over 160,000			10
By Type	Mean	Median	
Staff Salaries and Fringes	\$62,540	\$44,216	
Rent and Utilities	12,528	7,692	
Duplication and Supplies	1,860	1,100	
Equipment Maintenance	1,580	612	
Other	4,248	920	
Percent In-Kind	24%	18%	
Annualized Total Costs Including Amortization Of Investment Over 2 Years At 10% Interest			
Mean		\$110,425	
Median		97,968	
Distribution			
Less than \$40,000			8%
40,000 - 80,000			32
80,000 - 120,000			30
120,000 - 160,000			14
Over 160,000			16

Summary Table 17

CASH AND IN-KIND SUPPORT FOR CCP LEARNING CENTERS			
CCP Learning Centers Operating In First Quarter 1986			
Annual Total Projected From Quarterly Support Received			
Mean		\$121,864	
Median		87,032	
Distribution			
Less Than \$40,000			22%
40,000 - 80,000			28
80,000 - 120,000			15
120,000 - 160,000			11
160,000 - 200,000			8
Over 200,000			16
Source Of Support	Percent Total Support	Percent With	
Job Training Partnership Act	58%	81%	
Vocational Education	4	11	
Secondary Education	10	32	
Post-Secondary Education	5	14	
Corrections	1	1	
Welfare	3	6	
Other	20	20	

Summary Table 18

CCP LEARNING CENTER USE ACTIVITIES
CCP Learning Centers Operating In First Quarter 1986

Number Use Activities		
Mean	2.2	
Median	2.0	
Distribution		
1	45%	
2	24	
3	18	
4 Or More	13	
Primary Competencies Addressed	Percent	Percent
In Use Activity	Of Use	Centers
	Activities	With
Basic Mathematics	68%	82%
Reading Fundamentals	63	76
Intermediate Mathematics	93	96
Developmental Reading	87	94
Language Skills	82	87
GED Prep	73	82
College Prep	26	56
Basic Occupational Knowledge	40	49
Coping Skills	32	41
Intermediate Occupational Knowledge	47	61
Intermediate Consumer Economics	36	47
Life Skills	35	41
Advanced Occupational Knowledge	47	56
Advanced Consumer Economics	34	42
Government And Law	32	42
Health	32	42
Community Resources	33	42
Primary Target Groups	Percent	Percent
In Use Activity	Of Use	Centers
	Activities	With
Primary Students	13%	20%
Secondary Students	40	54
Dropouts	77	92
Young High School Graduates	36	52
Older High School Graduates	41	54
Post-Secondary Students	16	27
Poor	92	94
Limited English	15	20
Handicapped	28	39
Offender	40	51
Solo Parents	50	62
Displaced Workers	19	28

Summary Table 19

ANNUAL CCP INSTRUCTIONAL HOURS
CCP Learning Centers Operating In First Quarter 1986
Annual Hours Projected From Quarter Totals

	All Centers	Second Use Year Centers
Mean	8,432	10,304
Median	6,344	8,924
Distribution		
Less Than 2000	12%	11%
2000 - 3000	9	5
3000 - 4000	8	7
4000 - 5000	7	2
5000 - 6000	11	12
6000 - 7000	12	7
8000 - 10000	16	12
10000 - 20000	16	14
20000 Or More	8	30

Summary Table 20

ENTRY CHARACTERISTICS OF CCP LEARNERS
Cumulative CCP Terminees And First Quarter 1986 Actives

	Terminees To Date	Active In Quarter
Sex		
Male	47%	43%
Female	53	57
Age		
Under 14	1%	1
14-15	6	6
16-17	16	22
18-19	16	17
20-21	11	12
22-44	47	38
45-54	3	3
55+	1	1
Ethnic Group		
White	38%	36
Black	48	45
Hispanic	10	14
American Indian	1	1
Asian	3	3
Education Status At Entry		
Primary Student	3%	3%
High School Student	16	19
Post-Secondary Student	4	3
Dropout	42	54
High School Grad, Out Of School	26	16
GED Grad, Out Of School	8	4
Post-Secondary Grad, Out Of School	2	1
Highest Grade Completed		
6 Or Less	2%	2%
7	2	3
8	7	12
9	15	18
10	20	23
11	17	20
12	30	20
13-15	5	2
16 Or More	1	1
Average	10.5	10.1
Percent Students Behind Year Or More	58%	61%
Entry Reading Grade Level		
Mean	7.9	7.5
Distribution		
Less Than 5.0	11%	12%
5.0 < 7.0	26	29
7.0 < 9.0	30	31
9.0 < 11.0	23	19
11.0 +	10	8
Entry Math Grade Level		
Mean	7.2	6.9
Distribution		
Less Than 5.0	12%	13%
5.0 < 7.0	37	39
7.0 < 9.0	34	34
9.0 < 11.0	11	10
11.0 +	6	4

Summary Table 20
(Continued)

	Terminees To Date	Active In Quarter
Family Status		
Single Parent	22%	24%
Living Alone Or With Friends	27	19
Married, Spouse Present	11	11
Living With Parents Or Relatives	40	45
Any Children	33%	34%
Mean Number Children, Those With	2.0	2.0
Child Care Is Needed	14%	16%
Economic Status		
< 70% BLS Lower Living Standard	76%	72%
70-100% BLS Lower Living Standard	16	17
> 100% BLS Lower Living Standard	8	11
Receiving Assistance		
Any	62%	62%
Food Stamps	43	43
Medicaid	31	32
Cash Welfare	37	36
Unemployment Insurance	5	5
Housing Assistance	8	9
Other Cash	12	12
Mean Weeks Worked Last 3 Months	1.5	1.7
Percent Weeks Worked Last 3 Months		
10 Or More	8%	9
3-9	9	10
1-2	2	3
0	81	79
Percent Weeks In Last 3 Months		
Working, No School Or Training	9%	10%
Working, In School Or Training	5	6
School Or Training, No Work	29	30
No School, Work Or Training	47	55
Mean Earnings All Last 3 Months	\$157	\$170
Mean Weeks Worked Last Year	6.8	7.7
Percent Weeks Worked Last Year		
40 Or More	6%	7%
9-39	19	20
1-8	10	9
None	65	64
Mean Earnings All Last Year	\$829	\$894
Percent With Barriers To Employment		
Any	33%	32%
Two Or More	5	4
Limited English-Speaking	3	6
Migrant And Seasonal Farmworker	1	2
Handicapped	6	7
Offender	21	12
Displaced Homemaker	4	6
Lacking Citizenship	2	3

Summary Table 21

HOURS CCP INSTRUCTION AND RELATED ACTIVITIES
All CCP Terminees In And Through First Quarter 1986

	Terminees Through Quarter	Terminees In Quarter
Mean Days of CCP Enrollment	82.4	87.5
CCP Instructional Hours		
Mean	45.0	40.6
Distribution		
Less than 25	49%	54%
25-49	21	21
50-74	12	12
75-99	6	4
100-125	5	3
125+	8	7
Related Activities		
Percent With		
Any	88%	94%
Vocational Training	14	13
Non-CCP Education	32	42
Work Experience	15	11
Counseling	69	77
Other	24	30
Average Hours Terminees With		
Any	86.9	81.9
Vocational Training	146.9	156.6
Non-CCP Education	63.8	63.7
Work Experience	160.2	159.2
Counseling	10.1	9.5
Other	14.6	15.2
Average Hours All Terminees		
Any	76.2	76.9
Vocational Training	20.9	20.6
Non-CCP Education	20.2	26.9
Work Experience	24.2	17.5
Counseling	7.0	7.3
Other	3.6	4.6

Summary Table 22

COMPETENCIES ADDRESSED BY CCP LEARNERS
All CCP Terminees In And Through First Quarter 1986

Percent Assigned To Subject Strand	Terminees Through Quarter	Terminees In Quarter
Any Academic	84%	81%
Any Basic Academic	20	16
Basic Mathematics	17	14
Reading Fundamentals	12	9
Any Intermediate Academic	68	67
Intermediate Mathematics	60	56
Developmental Reading	39	33
Language Skills	38	33
Any Advanced Academic	35	36
Any GED Prep Level	34	35
Advanced Mathematics	17	16
Reading/Humanities	21	19
Writing	19	18
Social Studies	14	14
Science	13	12
Any College Prep Level	7	5
Any Functional	46%	43%
Any Basic Functional	10	7
Occupational Knowledge	8	6
Coping Skills	7	4
Any Intermediate Functional	24	20
Occupational Knowledge	20	16
Consumer Economics	10	7
Life Skills	11	8
Any Advanced Functional	27	24
Occupational Knowledge	20	16
Consumer Economics	9	8
Government And Law	8	6
Health	11	7
Community Resources	9	7

Summary Table 23

COMPETENCY ATTAINMENTS OF CCP LEARNERS
All CCP Terminees In And Through First Quarter 1986

	Terminees Through Quarter	Terminees In Quarter
Mean Levels Completed	2.8	2.5
Percent Of Completed CCP Levels		
Academic	73%	74%
Basic Academic	10	10
Basic Mathematics	6	6
Reading Fundamentals	4	4
Intermediate Academic	52	51
Intermediate Mathematics	26	27
Developmental Reading	13	11
Language Skills	13	13
Advanced Academic	11	12
Advanced Mathematics	3	3
Reading/Humanities	3	3
Writing	3	3
Social Studies	1	1
Science	1	1
GED Prep Levels	10	11
College Prep Levels	1	1
Functional	27%	26%
Basic Functional	3	3
Occupational Knowledge	2	2
Coping Skills	1	1
Intermediate Functional	9	8
Occupational Knowledge	6	5
Consumer Economics	2	1
Life Skills	1	2
Advanced Functional	15	15
Occupational Knowledge	7	8
Consumer Economics	2	2
Government And Law	1	2
Health	3	2
Community Resources	1	1

Summary Table 24

BENCHMARKS ACHIEVED DURING CCP ENROLLMENT BY TERMINEES
All CCP Terminees In And Through First Quarter 1986

Terminees Through First Quarter 1986

Any Benchmark	62%
Acquired GED	9
Acquired High School Diploma	7
Acquired Academic Credit	15
Demonstrated Work Maturity	51
Completed Training	5

Terminees In First Quarter 1986

Any Benchmark	59%
Acquired GED	10
Acquired High School Diploma	4
Acquired Academic Credit	18
Demonstrated Work Maturity	46
Completed Training	5

Summary Table 25

CCP LEARNER GAINS ON GRADE-NORMED ACADEMIC TESTS
CCP Terminees Tested In And Through First Quarter 1986

	Grade Gains		Hours Related Instruction	
	Reading	Math	Reading	Math
1984				
Fourth Quarter	1.3	1.7	41.6	31.7
1985				
First Quarter	1.4	1.5	38.8	31.7
Second Quarter	1.2	1.4	52.2	33.7
Third Quarter	.9	1.2	20.8	21.1
Fourth Quarter	1.0	1.6	26.1	26.5
1986				
First Quarter	1.0	1.6	22.9	27.8
All Terminees	1.0	1.6	31.6	27.8
Distribution				
Grade Gains				
0 Or Negative	22%	17%		
> 0 < .5	12	10		
.5 < 1.0	15	15		
1.0 < 1.5	16	15		
1.5 < 2.0	13	11		
2.0 +	23	32		

Summary Table 26

CCP LEARNER GAIN RATES ON GRADE-NORMED ACADEMIC TESTS
Terminees Tested In And Through First Quarter 1986

	Gain Rates/100 Hours (Total Grade Gains/Total Related Hours)	
	Reading	Math
1984		
Fourth Quarter	2.8	4.8
1985		
First Quarter	2.8	4.2
Second Quarter	2.4	3.9
Third Quarter	4.3	5.6
Fourth Quarter	4.0	5.6
1986		
First Quarter	4.0	5.4
All Terminees	3.7	5.1
Distribution		
0 Or Negative	22%	17%
> 0 < .5	3	2
.5 < 1.0	4	3
1.0 < 1.5	5	4
1.5 < 2.0	5	4
2.0 +	61	70

Summary Table 27

LEARNING GAIN PATTERNS BY DURATION OF CCP INSTRUCTION
CCP Terminees Third Quarter 1985 - First Quarter 1986

	Hours of Related Instruction		
	Low (1 < 49)	Medium (50 < 99)	High (100 >)
Reading			
Average Hours Instruction	16.3	70.4	140.9
Grade Gain	1.1	1.5	2.2
Gain Rate/100 Hours	6.0	2.2	1.5
Math			
Average Hours Instruction	17.0	68.5	133.5
Grade Gain	1.3	1.9	1.6
Gain Rate/100 Hours	6.4	2.7	1.2

Summary Table 28

COMPARATIVE GAINS BY CCP LEARNER ENTRY CHARACTERISTICS
CCP Terminees Third Quarter 1985 - First Quarter 1986

	Reading		Math	
	Grade Gain	Gain/100 Hours	Grade Gain	Gain/100 Hours
All	1.20	3.98	1.42	4.51
Single Parents	1.17	4.33	1.54	4.65
Welfare Recipients	1.26	3.68	1.48	4.33
Low Readers	1.42	3.63	1.19	* 3.43
Dropouts	1.21	4.00	1.30	4.02
Under Age 22	1.26	3.68	* 1.23	4.19
Blacks	1.10	3.58	* 1.06	* 3.35
Hispanics	1.68	5.70	1.34	5.19

Summary Table 29

COMPARATIVE GAINS OF CCP LEARNING CENTERS
CCP Learning Centers Operating In Fourth Quarter 1985

	Reading		Math	
	Grade Gain	Gain/100 Hours	Grade Gain	Gain/100 Hours
Mean	1.0	3.8	1.6	5.6
Median	1.1	3.8	1.5	5.3
Distribution				
0 Or Negative	0%	0%	0%	0%
> 0 < .5	4	0	12	0
.5 < 1.0	20	8	18	0
1.0 < 1.5	43	15	14	10
1.5 < 2.0	28	15	38	12
2.0 +	5	62	18	78

Summary Table 30

CCP LEARNER ASSESSMENTS (1985 CCP Learner Survey Respondants With Opinion)

* Are you learning faster in the learning center than in your last regular school?

Much faster	41%
A little faster	39
About the same	14
A little slower	5
Much slower	1

* Do you like the learning center better than your last regular school?

Much more	53%
Somewhat more	22
About the same	16
Somewhat less	4
Much less	4

* How would you rate your learning center?

Great, I would not change anything.	36%
Good, but I would make a few changes.	44
OK, but could be improved.	16
Not OK. Needs many changes.	3
Very bad. Needs total change.	2

* Would you recommend the learning center to your friends and relatives who need to learn?

I would strongly recommend it	45%
I would suggest they try it out	43
I would not recommend for or against	8
I would warn about some bad points	2
I would strongly advise against it	2

* In the learning center, how long did it take you to learn how to get assignments, keep track of time and to find the right tests?

A day or less	41%
Several days	30
A week	13
Several weeks	2
Still do not know	9

* The learning center allows me to learn more quickly because I don't waste time on learning things that I already know.

Agree strongly	59%	Disagree somewhat	5
Agree somewhat	33	Disagree strongly	2

* I work at my own pace and I do not feel pressured to compete with other learners.

Agree strongly	76%	Disagree somewhat	3
Agree somewhat	20	Disagree strongly	1

* The learning center allows me to take all the time I need to learn my assignments.

Agree strongly	71%	Disagree somewhat	3
Agree somewhat	22	Disagree strongly	3

Summary Table 30 (Continued)

* The learning center focuses on me, my needs and my style of learning.

Agree strongly	59%	Disagree somewhat	8
Agree somewhat	31	Disagree strongly	2

* One reason the learning center is better than the regular school classrooms is that if I miss a day, I can come back and pick up where I left off.

Agree strongly	80%	Disagree somewhat	3
Agree somewhat	14	Disagree strongly	3

* In the learning center I can work more or fewer hours some days and weeks depending on my needs.

Agree strongly	51%	Disagree somewhat	11
Agree somewhat	28	Disagree strongly	10

* The learning center hours and location are convenient, making it easier for me to attend and learn.

Agree strongly	53%	Disagree somewhat	10
Agree somewhat	33	Disagree strongly	4

* I work hard in the learning center because I can move on and out as soon as I learn what I need.

Agree strongly	65%	Disagree somewhat	4
Agree somewhat	27	Disagree strongly	3

* I think that the learning center uses a good variety of materials and they are easy to understand.

Agree strongly	48%	Disagree somewhat	9
Agree somewhat	35	Disagree strongly	3

* I like computer-assisted instruction more than learning from books alone.

Agree strongly	42%	Disagree somewhat	16
Agree somewhat	35	Disagree strongly	6

* The books and materials in the learning center are more closely related to what I need to meet my life goals than the books and materials in regular school.

Agree strongly	41%	Disagree somewhat	13
Agree somewhat	41	Disagree strongly	5

* The many tests help me to know what I have learned and where I need more work.

Agree strongly	76%	Disagree somewhat	3
Agree somewhat	19	Disagree strongly	1

* I like to take tests, even if I do not pass the first time, because it is the best way to know whether I have learned a skill.

Agree strongly	61%	Disagree somewhat	6
Agree somewhat	27	Disagree strongly	6

* When I have a problem with an assignment in the learning center, it takes a long time before the instructor or other staff give me help.

Agree strongly	9%	Disagree somewhat	18
Agree somewhat	14	Disagree strongly	57

Summary Table 30
(Continued)

* Staff and learners in the center usually know what they are supposed to be doing.

Agree strongly	60%	Disagree somewhat	6
Agree somewhat	30	Disagree strongly	3

* I keep track of my own time and assignments and I always know what I should be doing.

Agree strongly	53%	Disagree somewhat	6
Agree somewhat	38	Disagree strongly	2

* I always know where to find my assignments and learning materials in the learning center.

Agree strongly	48%	Disagree somewhat	11
Agree somewhat	37	Disagree strongly	2

* I like the tests used in the learning center because they let me know what I have learned and when I need more work.

Agree strongly	76%	Disagree somewhat	3
Agree somewhat	19	Disagree strongly	1

* In the learning center, I can learn most skills using the books and computers on my own without much help from teachers.

Agree strongly	38%	Disagree somewhat	8
Agree somewhat	42	Disagree strongly	13

* My time at the learning center is spent with few interruptions.

Agree strongly	46%	Disagree somewhat	9
Agree somewhat	38	Disagree strongly	8

* Too much time is wasted at the learning center on getting assignments, scoring tests and keeping records.

Agree strongly	5%	Disagree somewhat	25
Agree somewhat	17	Disagree strongly	53

* Most learners cause fewer problems and waste less time in the learning center than in regular school.

Agree strongly	48%	Disagree somewhat	10
Agree somewhat	30	Disagree strongly	7

* The staff at the learning center are always there to help me when I run into a problem with assignments.

Agree strongly	67%	Disagree somewhat	6
Agree somewhat	24	Disagree strongly	6

* In comparison to other teachers that I have had, the learning center staff seem to care more about my learning goals.

Agree strongly	67%	Disagree somewhat	3
Agree somewhat	26	Disagree strongly	4

* The learning center staff care what I feel and think.

Agree strongly	55%	Disagree somewhat	5
Agree somewhat	35	Disagree strongly	3

* I believe that the learning center staff understand me and try to adjust to my interests and needs.

Agree strongly	53%	Disagree somewhat	8
Agree somewhat	37	Disagree strongly	2

Summary Table 30
(Continued)

* The learning center staff believe that I can learn and treat me with respect.

Agree strongly	74%	Disagree somewhat	2
Agree somewhat	24	Disagree strongly	1

* I like the way tests are scored in the learning center because it is always fair.

Agree strongly	64%	Disagree somewhat	6
Agree somewhat	26	Disagree strongly	4

* I do not feel "put down" by people at the learning center because of what I don't know or because I learn more slowly than others.

Agree strongly	74%	Disagree somewhat	4
Agree somewhat	20	Disagree strongly	2

* In the learning center, I know I can learn things that were really hard in the past.

Agree strongly	60%	Disagree somewhat	5
Agree somewhat	33	Disagree strongly	2

* The learning center makes me feel like learning.

Agree strongly	67%	Disagree somewhat	5
Agree somewhat	24	Disagree strongly	4

* The staff of the learning center treat everyone with respect and are treated with respect by learners.

Agree strongly	67%	Disagree somewhat	6
Agree somewhat	26	Disagree strongly	1

* Most other participants want to learn, and the learning center is set up so they can.

Agree strongly	61%	Disagree somewhat	12
Agree somewhat	22	Disagree strongly	6

* The learning center teaches skills that will be needed in the world of work.

Agree strongly	37%	Disagree somewhat	16
Agree somewhat	40	Disagree strongly	7

* I am better able to do things at home and in the community because of what I am learning.

Agree strongly	63%	Disagree somewhat	6
Agree somewhat	29	Disagree strongly	2

* What I learn in the learning center will make a difference in my future.

Agree strongly	67%	Disagree somewhat	5
Agree somewhat	26	Disagree strongly	3

* I work harder in the learning center because learning is linked to work, training or other activities.

Agree strongly	63%	Disagree somewhat	6
Agree somewhat	30	Disagree strongly	3

Summary Table 31

CCP COSTS PER INSTRUCTIONAL HOUR
CCP Learning Centers Operating In First Quarter 1986

	All Users	First- Year Users	Longer- Term Users
Operating Costs/CCP Instructional Hours			
All Costs/All Hours	\$9.81	\$10.28	\$9.20
Mean Of Centers	15.90	16.67	14.91
Median Of Centers	10.43	11.78	10.19
Distribution Of Centers			
Less Than \$2.00	0%	0%	0%
\$2.00 - 3.00	8	0	14
\$3.00 - 5.00	11	5	14
\$5.00 - 7.00	12	7	14
\$7.00 - 9.00	15	21	7
\$9.00 - 11.00	8	7	10
\$11.00 - 13.00	10	12	7
\$13.00 - 15.00	11	10	12
\$15.00 - 25.00	13	14	12
\$25.00 And Over	17	24	10
Total Costs/CCP Instructional Hours			
All Costs/All Hours	\$13.09	\$13.53	\$12.46
Mean Of Centers	22.27	23.01	21.21
Median Of Centers	13.89	15.15	13.68
Distribution Of Centers			
Less Than \$2.00	0%	0%	0%
\$2.00 - 3.00	0	0	0
\$3.00 - 5.00	4	0	7
\$5.00 - 7.00	10	5	14
\$7.00 - 9.00	12	9	14
\$9.00 - 11.00	10	9	10
\$11.00 - 13.00	8	12	5
\$13.00 - 15.00	8	9	7
\$15.00 - 25.00	25	26	24
\$25.00 And Over	23	30	19
Operating Costs/Open Hours Capacity Instructional Hours			
All Costs/All Hours	\$1.85	\$1.73	\$1.97
Mean Of Centers	2.39	2.24	2.54
Median Of Centers	1.91	1.91	1.93
Distribution Of Centers			
Less Than \$2.00	57%	57%	57%
\$2.00 - 3.00	19	17	21
\$3.00 - 5.00	16	14	19
\$5.00 - 7.00	4	7	2
\$7.00 - 9.00	0	0	0
\$9.00 - 11.00	4	5	2
\$11.00 - 13.00	0	0	0
\$13.00 - 15.00	0	0	0
\$15.00 - 25.00	0	0	0
\$25.00 And Over	0	0	0
Total Costs/Open Hours Capacity Instructional Hours			
All Costs/All Hours	\$ 2.37	\$2.22	\$2.59
Mean Of Centers	3.23	3.03	3.53
Median Of Centers	2.47	2.45	2.85
Distribution Of Centers			
Less Than \$2.00	38%	33%	31%
\$2.00 - 3.00	32	30	33
\$3.00 - 5.00	24	28	14
\$5.00 - 7.00	7	4	10
\$7.00 - 9.00	4	2	5
\$9.00 - 11.00	4	2	5
\$11.00 - 13.00	1	0	2
\$13.00 - 15.00	0	0	0
\$15.00 - 25.00	0	0	0
\$25.00 And Over	0	0	0

Summary Table 32

CCP LEARNING CENTER INSTRUCTIONAL HOURS VS. CAPACITY
CCP Learning Centers Operating In First Quarter 1986

	All Users	First- Year Users	Longer- Term Users
CCP Instructional Hours/ Open Hours Capacity			
Mean	22%	17%	28%
Median	17	17	22
Distribution			
Less Than 5%	11%	7%	14%
5 - 10%	13	14	12
10 - 15%	18	10	26
15 - 20%	20	14	23
20 - 30%	15	17	14
30 - 40%	11	17	5
40% Or More	13	21	6
CCP Instructional Hours/ Full-Time Use Capacity			
Mean	14%	18%	11%
Median	11	14	11
Distribution			
Less Than 5%	14%	7%	16%
5 - 10%	25	19	30
10 - 15%	29	16	42
15 - 20%	14	21	7
20 - 30%	9	17	2
30 - 40%	4	2	4
40% Or More	5	10	0

Summary Table 33

CCP LEARNING CENTER EFFICIENCY AND EFFECTIVENESS

	Ten Highest Use Rate Centers	Ten Lowest Cost Centers	All Centers
All Costs/All CCP Instructional Hours	\$6.96	\$5.16	\$13.09
Mean Annualized CCP Instructional Hours	19,468	18,592	8,432
Mean Reading Gain/ 100 Hours	4.7	4.6	3.7
Mean Math Gain/ 100 Hours	5.4	4.8	4.0
Average Reading And Math Gain/100 Hours	5.1	4.7	4.0
Estimated Mean Annual Grade Gains	993	874	337
Mean Cost/Grade Gained	\$136	\$110	\$327

Summary Table 26

CCP LEARNER GAIN RATES ON GRADE-NORMED ACADEMIC TESTS
Terminees Tested In And Through First Quarter 1986

	Gain Rates/100 Hours (Total Grade Gains/Total Related Hours)	
	Reading	Math
1984		
Fourth Quarter	2.8	4.8
1985		
First Quarter	2.8	4.2
Second Quarter	2.4	3.9
Third Quarter	4.3	5.6
Fourth Quarter	4.0	5.6
1986		
First Quarter	4.0	5.4
All Terminees	3.7	5.1
Distribution		
0 Or Negative	22%	17%
> 0 < .5	3	2
.5 < 1.0	4	3
1.0 < 1.5	5	4
1.5 < 2.0	5	4
2.0 +	61	70

Summary Table 27

LEARNING GAIN PATTERNS BY DURATION OF CCP INSTRUCTION
CCP Terminees Third Quarter 1985 - First Quarter 1986

	Hours of Related Instruction		
	Low (1 < 49)	Medium (50 < 99)	High (100 >)
Reading			
Average Hours Instruction	16.3	70.4	140.9
Grade Gain	1.1	1.5	2.2
Gain Rate/100 Hours	6.0	2.2	1.5
Math			
Average Hours Instruction	17.0	68.5	133.5
Grade Gain	1.3	1.9	1.6
Gain Rate/100 Hours	6.4	2.7	1.2

Summary Table 28

COMPARATIVE GAINS BY CCP LEARNER ENTRY CHARACTERISTICS
CCP Terminees Third Quarter 1985 - First Quarter 1986

	Reading		Math	
	Grade Gain	Gain/100 Hours	Grade Gain	Gain/100 Hours
All	1.20	3.88	1.42	4.51
Single Parents	1.17	4.33	1.54	4.65
Welfare Recipients	1.26	3.68	1.48	4.33
Low Readers	1.42	3.63	1.19	* 3.43
Dropouts	1.21	4.00	1.30	4.02
Under Age 22	1.26	3.68	* 1.23	4.19
Blacks	1.10	3.58	* 1.06	* 3.35
Hispanics	1.68	5.70	1.34	5.19

Summary Table 29

COMPARATIVE GAINS OF CCP LEARNING CENTERS
CCP Learning Centers Operating In Fourth Quarter 1985

	Reading		Math	
	Grade Gain	Gain/100 Hours	Grade Gain	Gain/100 Hours
Mean	1.0	3.8	1.6	5.6
Median	1.1	3.8	1.5	5.3
Distribution				
0 Or Negative	0%	0%	0%	0%
> 0 < .5	4	0	12	0
.5 < 1.0	20	8	18	0
1.0 < 1.5	43	15	14	10
1.5 < 2.0	28	15	38	12
2.0 +	5	62	18	78

Summary Table 30

CCP LEARNER ASSESSMENTS (1985 CCP Learner Survey Respondants With Opinion)

* Are you learning faster in the learning center than in your last regular school?

Much faster	41%
A little faster	39
About the same	14
A little slower	5
Much slower	1

* Do you like the learning center better than your last regular school?

Much more	53%
Somewhat more	22
About the same	16
Somewhat less	4
Much less	4

* How would you rate your learning center?

Great, I would not change anything.	36%
Good, but I would make a few changes.	44
OK, but could be improved.	16
Not OK. Needs many changes.	3
Very bad. Needs total change.	2

* Would you recommend the learning center to your friends and relatives who need to learn?

I would strongly recommend it	45%
I would suggest they try it out	43
I would not recommend for or against	8
I would warn about some bad points	2
I would strongly advise against it	2

* In the learning center, how long did it take you to learn how to get assignments, keep track of time and to find the right tests?

A day or less	41%
Several days	30
A week	13
Several weeks	2
Still do not know	9

* The learning center allows me to learn more quickly because I don't waste time on learning things that I already know.

Agree strongly	59%	Disagree somewhat	5
Agree somewhat	33	Disagree strongly	2

* I work at my own pace and I do not feel pressured to compete with other learners.

Agree strongly	76%	Disagree somewhat	3
Agree somewhat	20	Disagree strongly	1

* The learning center allows me to take all the time I need to learn my assignments.

Agree strongly	71%	Disagree somewhat	3
Agree somewhat	22	Disagree strongly	3

Summary Table 30 (Continued)

* The learning center focuses on me, my needs and my style of learning.

Agree strongly	59%	Disagree somewhat	8
Agree somewhat	31	Disagree strongly	2

* One reason the learning center is better than the regular school classrooms is that if I miss a day, I can come back and pick up where I left off.

Agree strongly	80%	Disagree somewhat	3
Agree somewhat	14	Disagree strongly	3

* In the learning center I can work more or fewer hours some days and weeks depending on my needs.

Agree strongly	51%	Disagree somewhat	11
Agree somewhat	28	Disagree strongly	10

* The learning center hours and location are convenient, making it easier for me to attend and learn.

Agree strongly	53%	Disagree somewhat	10
Agree somewhat	33	Disagree strongly	4

* I work hard in the learning center because I can move on and out as soon as I learn what I need.

Agree strongly	65%	Disagree somewhat	4
Agree somewhat	27	Disagree strongly	3

* I think that the learning center uses a good variety of materials and they are easy to understand.

Agree strongly	48%	Disagree somewhat	9
Agree somewhat	35	Disagree strongly	3

* I like computer-assisted instruction more than learning from books alone.

Agree strongly	42%	Disagree somewhat	16
Agree somewhat	35	Disagree strongly	6

* The books and materials in the learning center are more closely related to what I need to meet my life goals than the books and materials in regular school.

Agree strongly	41%	Disagree somewhat	13
Agree somewhat	41	Disagree strongly	5

* The many tests help me to know what I have learned and where I need more work.

Agree strongly	76%	Disagree somewhat	3
Agree somewhat	19	Disagree strongly	1

* I like to take tests, even if I do not pass the first time, because it is the best way to know whether I have learned a skill.

Agree strongly	61%	Disagree somewhat	6
Agree somewhat	27	Disagree strongly	6

* When I have a problem with an assignment in the learning center, it takes a long time before the instructor or other staff give me help.

Agree strongly	9%	Disagree somewhat	18
Agree somewhat	14	Disagree strongly	57

Summary Table 30
(Continued)

* Staff and learners in the center usually know what they are supposed to be doing.

Agree strongly	60%	Disagree somewhat	6
Agree somewhat	30	Disagree strongly	3

* I keep track of my own time and assignments and I always know what I should be doing.

Agree strongly	53%	Disagree somewhat	6
Agree somewhat	38	Disagree strongly	2

* I always know where to find my assignments and learning materials in the learning center.

Agree strongly	48%	Disagree somewhat	11
Agree somewhat	37	Disagree strongly	2

* I like the tests used in the learning center because they let me know what I have learned and when I need more work.

Agree strongly	76%	Disagree somewhat	3
Agree somewhat	19	Disagree strongly	1

* In the learning center, I can learn most skills using the books and computers on my own without much help from teachers.

Agree strongly	38%	Disagree somewhat	8
Agree somewhat	42	Disagree strongly	13

* My time at the learning center is spent with few interruptions.

Agree strongly	46%	Disagree somewhat	9
Agree somewhat	38	Disagree strongly	8

* Too much time is wasted at the learning center on getting assignments, scoring tests and keeping records.

Agree strongly	5%	Disagree somewhat	25
Agree somewhat	17	Disagree strongly	53

* Most learners cause fewer problems and waste less time in the learning center than in regular school.

Agree strongly	48%	Disagree somewhat	10
Agree somewhat	30	Disagree strongly	7

* The staff at the learning center are always there to help me when I run into a problem with assignments.

Agree strongly	67%	Disagree somewhat	6
Agree somewhat	24	Disagree strongly	6

* In comparison to other teachers that I have had, the learning center staff seem to care more about my learning goals.

Agree strongly	67%	Disagree somewhat	3
Agree somewhat	26	Disagree strongly	4

* The learning center staff care what I feel and think.

Agree strongly	55%	Disagree somewhat	5
Agree somewhat	35	Disagree strongly	3

* I believe that the learning center staff understand me and try to adjust to my interests and needs.

Agree strongly	53%	Disagree somewhat	8
Agree somewhat	37	Disagree strongly	2

Summary Table 30
(Continued)

* The learning center staff believe that I can learn and treat me with respect.

Agree strongly	74%	Disagree somewhat	2
Agree somewhat	24	Disagree strongly	1

* I like the way tests are scored in the learning center because it is always fair.

Agree strongly	64%	Disagree somewhat	6
Agree somewhat	26	Disagree strongly	4

* I do not feel "put down" by people at the learning center because of what I don't know or because I learn more slowly than others.

Agree strongly	74%	Disagree somewhat	4
Agree somewhat	20	Disagree strongly	2

* In the learning center, I know I can learn things that were really hard in the past.

Agree strongly	60%	Disagree somewhat	5
Agree somewhat	33	Disagree strongly	2

* The learning center makes me feel like learning.

Agree strongly	67%	Disagree somewhat	5
Agree somewhat	24	Disagree strongly	4

* The staff of the learning center treat everyone with respect and are treated with respect by learners.

Agree strongly	67%	Disagree somewhat	6
Agree somewhat	26	Disagree strongly	1

* Most other participants want to learn, and the learning center is set up so they can.

Agree strongly	61%	Disagree somewhat	12
Agree somewhat	22	Disagree strongly	6

* The learning center teaches skills that will be needed in the world of work.

Agree strongly	37%	Disagree somewhat	16
Agree somewhat	40	Disagree strongly	7

* I am better able to do things at home and in the community because of what I am learning.

Agree strongly	63%	Disagree somewhat	6
Agree somewhat	29	Disagree strongly	2

* What I learn in the learning center will make a difference in my future.

Agree strongly	67%	Disagree somewhat	5
Agree somewhat	26	Disagree strongly	3

* I work harder in the learning center because learning is linked to work, training or other activities.

Agree strongly	63%	Disagree somewhat	6
Agree somewhat	30	Disagree strongly	3

Summary Table 31

CCP COSTS PER INSTRUCTIONAL HOUR
CCP Learning Centers Operating In First Quarter 1986

	All Users	First- Year Users	Longer- Term Users
Operating Costs/CCP Instructional Hours			
All Costs/All Hours	\$9.81	\$10.28	\$9.20
Mean Of Centers	15.90	16.67	14.91
Median Of Centers	10.43	11.78	10.19
Distribution Of Centers			
Less Than \$2.00	0%	0%	0%
\$2.00 - 3.00	8	0	14
\$3.00 - 5.00	11	5	14
\$5.00 - 7.00	12	7	14
\$7.00 - 9.00	15	21	7
\$9.00 - 11.00	8	7	10
\$11.00 - 13.00	10	12	7
\$13.00 - 15.00	11	10	12
\$15.00 - 25.00	13	14	12
\$25.00 And Over	17	24	10
Total Costs/CCP Instructional Hours			
All Costs/All Hours	\$13.09	\$13.53	\$12.46
Mean Of Centers	22.27	23.01	21.21
Median Of Centers	13.89	15.15	13.68
Distribution Of Centers			
Less Than \$2.00	0%	0%	0%
\$2.00 - 3.00	0	0	0
\$3.00 - 5.00	4	0	7
\$5.00 - 7.00	10	5	14
\$7.00 - 9.00	12	9	14
\$9.00 - 11.00	10	9	10
\$11.00 - 13.00	8	12	5
\$13.00 - 15.00	8	9	7
\$15.00 - 25.00	25	26	24
\$25.00 And Over	23	30	19
Operating Costs/Open Hours Capacity Instructional Hours			
All Costs/All Hours	\$1.85	\$1.73	\$1.97
Mean Of Centers	2.39	2.24	2.54
Median Of Centers	1.91	1.91	1.93
Distribution Of Centers			
Less Than \$2.00	57%	57%	57%
\$2.00 - 3.00	19	17	21
\$3.00 - 5.00	16	14	19
\$5.00 - 7.00	4	7	2
\$7.00 - 9.00	0	0	0
\$9.00 - 11.00	4	5	2
\$11.00 - 13.00	0	0	0
\$13.00 - 15.00	0	0	0
\$15.00 - 25.00	0	0	0
\$25.00 And Over	0	0	0
Total Costs/Open Hours Capacity Instructional Hours			
All Costs/All Hours	\$ 2.37	\$2.22	\$2.59
Mean Of Centers	3.23	3.03	3.53
Median Of Centers	2.47	2.45	2.85
Distribution Of Centers			
Less Than \$2.00	38%	33%	31%
\$2.00 - 3.00	32	30	33
\$3.00 - 5.00	24	28	14
\$5.00 - 7.00	7	4	10
\$7.00 - 9.00	4	2	5
\$9.00 - 11.00	4	2	5
\$11.00 - 13.00	1	0	2
\$13.00 - 15.00	0	0	0
\$15.00 - 25.00	0	0	0
\$25.00 And Over	0	0	0



COMPREHENSIVE COMPETENCIES PROGRAM

**The Comprehensive Competencies Program:
A New Way to Teach, A New Way to Learn**

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Remediation and Training Institute
Washington, D.C.

THE COMPREHENSIVE COMPETENCIES PROGRAM:
A NEW WAY TO TEACH, A NEW WAY TO LEARN

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A NATIONAL MALADY

Millions of Americans lack the basic academic and functional competencies required for success in today's labor market, as well as in school, in the home and in the community. One in three adults age 25 and over does not have a high school diploma, and though most have learned what they need outside the classroom, many remain handicapped by inadequate skills. A fourth of young adults are dropouts, and most of these have serious deficiencies. In the schools are many other youth who have already fallen behind and are a sure bet to leave early unless something is done immediately to help them catch up. But the diploma is no guarantee of competency, since a third of graduating seniors have tested math and reading achievement below ninth-grade norms. Even among graduates advancing to college, a third must enroll in remedial courses, which often begin with reviews of grade-school skills.

No group is immune from this malady. Many older Americans suffer, not necessarily from the lack of native ability, but because education was less important, and society less complex, when they were young. Among those growing up since the opportunity and expectation for 12 grades of public education became universal, those who failed in or were failed by the schools were often the products of poor and disruptive homes and communities. However, many individuals from advantaged backgrounds squandered opportunities because of immaturity or personal problems. Minorities are disproportionately victimized, but the majority of those with skills deficiencies are whites. A substantial share are "disconnected"--unemployed and dislocated workers, displaced homemakers, welfare recipients, chronic truants and delinquents, incarcerated offenders, drug and alcohol abusers, runaways and the homeless, as well as large numbers with no social pathologies who are simply drifting, out-of-school and out of work, supported by family and friends. Nevertheless, the majority of individuals lacking basic skills are "connected"--they have jobs, they are raising families or they are enrolled in school. They do their best, and many do reasonably well, but they must struggle daily to compensate for and disguise their handicaps.

The symptoms vary in severity. One to two million Americans are totally illiterate, unable to read and write in any language. Another several million are foreign-born who have not yet mastered English language skills. As many as fifteen million adults lack high school entry competencies--never advancing beyond decimals, fractions and percents, unable to read or write multiple-paragraph compositions, and hence stymied by resumes and letters of application, detailed instructions and safety warnings, unit pricing and legal contracts. An even larger number have gaps in their high school level skills--basic subjects they were never taught, could not master or forgot through disuse, but are now needed.

All of these individuals can learn. Even those with severe learning disabilities and mental handicaps can be taught new skills with enough time and attention. For most people with deficient skills, learning is a struggle because they are out of practice and because they have other breadwinning and family responsibilities. Yet they can master basic competencies if they put out a sustained effort. A substantial minority have the potential for accelerated learning, particularly those with native ability who have been denied learning opportunities, those whose skills have atrophied but can be recalled, as well as those schooled in other countries who simply need to translate acquired knowledge. Though many of these individuals do not want to learn because they are resigned, fearful, or lack the time and energy which is required, there are many millions who are willing as well as able. These are the faces behind the desks in secondary and post-secondary remediation classes, in alternative schools, in adult basic education courses, in ESL and GED classes, in the basic skills components of job training and corrections programs, as well as in private sector and military entry training. Yet because of the limited availability and inadequacies of such treatments, all too few of those who want help can get it, while all too few of those who are treated are cured. Hence, the basic skills problem remains chronic.

THE RESEARCH PRESCRIPTIONS

Is there a cure for this national malady? Education research provides a hopeful answer: The critical elements of an effective treatment have been definitively identified. Effective schools studies have discovered common features among those secondary schools achieving learning gains with students and in settings where most other schools fail. Assessments of adult basic education programs throughout the nation have isolated the success ingredients of exemplary programs. Marked similarities have been found among post-secondary remedial programs achieving above-average results. Finally, job training program evaluations have isolated the key factors in effective basic skills components. There is surprising consistency between the treatment approaches which work in these varied institutional settings serving quite different learner populations. Without much loss or distortion, the findings of secondary, post-secondary, adult basic education and job training research can be condensed into the following ten prescriptions for effectively teaching basic skills:

1. Learning basic skills is a step-by-step process best achieved through individualized, self-paced instruction.

Most individuals learn in short periods of concentration, absorbing "bite-sized chunks" of information and experience. There is an inherent progression of steps in the learning of many academic and functional subjects, with each specific competency requiring mastery of certain prior skills. While the sequence of learning objectives can be varied somewhat, skipping steps will eventually undermine further progress because the prerequisite skills have not been mastered. Individuals vary in how far they have advanced in each subject area as well as in their potential for further progress. If instruction covers skills which have already been

mastered, it wastes time; if it moves ahead too fast, it will leave insurmountable gaps. Any group of individuals will have divergent skills and potentials, so that group instruction will be beyond some in the class and behind others. If group instruction is targeted to the best and brightest, a large portion of learners will experience failure since the pace will be too rapid. If instruction is targeted to the slowest, a large portion of learners will be bored. Teaching to the mean more evenly distributes the frustration but does not reduce the total amount. In contrast, where instruction is organized as a sequence of "bite-sized" learning objectives in each subject, with each learner beginning at his or her entry skill level and progressing as rapidly as mastery can be demonstrated, and with each working independently, the fast learners can move ahead without waiting for others, while pressure is eased on the slower learners.

2. Learning is accelerated when it is competency-based rather than time-based, and is more feasible when it can be flexibly scheduled and sequenced.

For adults and young adults, every hour in education is an hour outside of the labor market or away from family responsibilities, and most want to learn what they need as rapidly as possible. Students lagging behind in school want to catch up and rejoin the mainstream, while those with above-average ability want to move as quickly as possible to the next rung of the educational ladder. If the duration of the educational treatment is fixed, there is no incentive for those who can to learn faster, and there is likely failure for slower learners who cannot achieve mastery in the allotted time. If the sequence as well as the duration of instruction is fixed, classes cannot be scheduled until there is a homogeneous group large enough to support a teacher, and there can be no enrollment until a new class begins. Where learners' needs and interests vary significantly, it is difficult to schedule groups of similar ability and need. If diverse learners are grouped together for scheduling expediency, there will be greater proportions who are either bored or lost. Family, social and workplace activities inevitably intrude on participation, and if an individual falls too far behind, then he or she must repeat the entire sequence. Unless the location and schedule of instruction is convenient, interruptions will be multiplied. In other words, instruction will be most effective if it is available when and where needed; if it permits entry whenever an individual is ready for learning; and if it accommodates the inevitable interruptions while it also encourages diligence by basing completion upon skills mastery rather than time inputs.

3. Learning is facilitated when a variety of instructional materials and media are available and used.

Individuals vary in learning styles and preferences. Some learn best by reading alone, others from group discussion, some from hands-on experience and others from computers or audiovisuals. There are myriad options in reading materials, from heavy textbooks and programmed learning kits to topical readers and throw-away workbooks. There are numerous computer systems, and CAI lessons range from drill-and-practice and learning games to sophisticated tutorials and simulations of learning

games. Each individual will have preferences among these varied options. Moreover, any individual's learning style and preference may change from day to day and depends on the subject matter. Variety is usually beneficial in any learner's regimen. There is no "correct" mix of materials and media for a group; like group instruction targeted to the mean, an optimum choice of courseware selected to serve the average or modal interests of the group will leave many unfulfilled. Instead, each individual learner needs timely access to the specific instructional option appropriate for his or her learning task whenever it must be addressed. Not only does this require a diversity of courseware, but also a means for matching instructional options with needs on a timely individual basis.

4. Learning is given impetus and direction by frequent feedback on progress and greater accountability for learning efforts and outcomes.

In a cumulative, step-by-step learning process, where problems are encountered if prior steps have not been mastered, the frequency with which mastery is assessed is a critical issue. Longer intervals between assessments increase the likelihood of missteps and mean that learners may have to subsequently backtrack further, which increases the uncertainty and anxiety when assessment occurs. Frequent measures provide a more dependable basis for diagnosing learner problems as well as for assuring more timely remediation. Most individuals prefer immediate to delayed gratification, and are more motivated when they can see and be rewarded for progress day by day. It is human nature to slack off if the "day of reckoning" is farther in the future. Delays in assessing competency attainments also undermine the incentives of competency-based, rather than time-based, progress and completion criterion by causing learners to wait to be assessed even though they have achieved learning goals. Finally, since the progress of learners is the output of teachers, more detailed and frequent feedback to learners also results in greater accountability and motivation of teachers.

5. Learning is enhanced when learners have a sense of "efficacy," taking responsibility and directing their own learning towards agreed-upon goals.

No matter how good the instructional material, how well it is organized and presented, or how closely progress is tracked, mastery depends on the attitude and commitment of the learner. It is human nature to be more positive and committed when the purpose and plan of learning are clear, when there is an obvious relationship between actions and desired outcomes, when there are options and participation in the choices, and when the individual is given greater responsibility for his or her actions. Where learners always need to be told what to do, precious time is spent giving and receiving logistical instructions rather than teaching content. Where learners are "taught to," it is difficult to know whether they are learning, or to respond to individual problems if they are not. Learning and learners become passive. Active involvement, or "efficacy," can be fostered by motivational teachers willing to engage individual learners in effective group and experience-based learning activities, and through the use of learning systems which permit and reward individual initiative.

6. Learning depends on the applied learning time or "time-on-task" during instructional hours.

In the traditional classroom, where instruction is delivered by the teacher to the group, any paperwork, discipline or even response to a particular student's problem, means downtime for the rest of the class. Where some learners are bored because the pace is too slow, and others are lost because it is too fast, the number of disruptions will inevitably increase. Administering and checking tests on a group basis, giving assignments, passing out materials or simply getting everyone to look at the same page in the textbook, reduces applied learning time. Whenever an instruction is given or a test taken, the ones finishing first must wait for the rest of the class. Where classes are grouped by subject, the downtime is multiplied by the transition from one class to another. Thus, "time-on-task" studies of secondary schools have found that students spend less than a fourth of scheduled class hours applying themselves to learning activities. While the quality of applied learning time is as important as the quantity, idle minutes certainly do not contribute to learning. Studies of effective schools, as well as effective remedial programs in other settings, find that the most successful are able to maximize time-on-task through efficient management of the learning process.

7. Learning is accelerated when caring teachers provide individual attention and assistance.

With even the best of instructional materials, learners will still encounter problems which cannot be solved without help. A computer can assess response patterns to diagnose and correct some of these problems, but the determination of an individual's learning style, needs and preferences remains an art rather than a science, and a machine cannot provide mentorship, charisma or the human touch which are key ingredients to learning. On the other hand, the presence of a teacher does not guarantee the necessary interaction if the teacher's time must be spent preparing and presenting group instruction, meting out discipline or handling paperwork. Even the best of teachers need the time to deal with individual learners, the wherewithall to assess each student's needs, and the tools to help solve the individual problem, once diagnosed.

8. Learning is easier for those who believe they can learn, and is enhanced by instructors, instructional approaches and instructional settings which provide positive reinforcement.

The classroom is an arena of frustration and failure for those who cannot keep up with other students. Where teacher performance is assessed based on the average progress of the class, teachers may be understandably perturbed by the slower learners, particularly if they hold up the rest of the class with their questions and if there is no time for one-on-one assistance. Peer pressure often leads these slower learners to try to disguise their problems by silence or disruptive behavior. For them, tests are a source of great anxiety because they broadcast deficiencies. Tracking of students may ease day-to-day tensions, but segregates and stigmatizes the slower learners in a way that can become a self-fulfilling

prophecy. To break this cycle of frustration and failure requires instructional staff and learning systems which recognize and reward learners for what they have achieved; rather than stressing what they have failed to learn; which allows every individual to be tracked into an appropriate level without stigmatization; which permits attention to the needs of the slower learner without holding back the class; and which encourages peer support rather than peer pressure.

9. Learning is nurtured in a structured yet supportive environment which deals with personal problems so they do not intrude on learning.

Left unattended, an individual's difficulties at home or work will usually spill over into the classroom, undermining his or her capacity to learn; and if these problems are manifested in negative behavior. Where learners are treated, or treat others, disrespectfully, enthusiasm for learning can easily wane. If teachers doubt the capacity of their students to learn, then learners will doubt themselves and learning will be more difficult. Lax discipline will reduce applied learning time, but if teachers are stentorian, learners will avoid seeking help with their personal problems. And if some learners are lost because the pace is too fast, or bored because it is too slow, and if they cannot get help when they need it, they are likely to be disruptive. To create a structured yet supportive environment for learning requires adequate counseling and other services to cope with outside problems, firm rules of behavior enforced with caring, a commitment to engaging each learner up to their capacity, plus faith that everyone can learn.

10. Learning is accelerated and more directed when integrated with other activities and pursued as a means to other ends.

For adults, learning is almost always an adjunct to other activities, while for full-time students it is usually a preparation for employment and family responsibilities. If what is taught is seen as relevant to these other activities and goals, it is more likely to be learned. When basic skills instruction is closely integrated with work, training or other education, the relevance is more apparent, the time lost in transition from one activity to the other is reduced, and learning may be enhanced by the variation and balance. If there is an immediate and tangible payoff from learning such as access or promotion in school, entry into vocational training, qualification for a job or citizenship, or simply being able to vote or read to the children, then learners will be more motivated.

PACKAGING THE PRESCRIPTIONS

Although education research successfully identified these ten elements of effective basic skills instruction, there was less success in applying these prescriptions. Exemplary education programs and curricula developed in the 1960s and 1970s provided only partial remedies including some, but not all of the recommended elements, and these were unevenly applied and sometimes abused.

To help package and disseminate the research prescriptions, the Ford Foundation supported the Remediation and Training Institute in developing the Comprehensive Competencies Program (CCP), a system integrating the best materials, technologies and approaches so that they could be widely and effectively applied. The CCP was created in 1983, prototyped, assessed and finetuned in 1984, packaged for replication in 1985, and is now in use throughout the nation by community-based organizations, secondary-, post-secondary, and vocational schools, corrections institutions and job training programs.

The CCP covers an inclusive array of "basic skills"-- academic competencies ranging from elementary reading and arithmetic, through high school and introductory college-level science, math, humanities, social studies and writing, as well as rudimentary through quite sophisticated functional competencies related to job getting and holding, consumer economics, citizenship, health and community resources. The system is organized into parallel Academic and Functional Components. There are three ability Tiers in each Component, spanning four Levels of difficulty in the specific Subject Strands within these Tiers. The Levels are divided into sequenced Units which, in turn, are subdivided into Lessons addressing very specific competency objectives, which can be mastered in a single learning period.

To diagnose learning needs and to track progress through the hierarchy of competency objectives, the CCP includes over 600 Mastery Tests. Short Unit Mastery Tests measure all the subsumed Lesson objectives. Longer Level Mastery Tests address in a more general way the group of related competencies in the Units of each Level. Strand Mastery Tests assess subject-related skills and Tier Mastery Tests assess global competencies. There are parallel forms of all tests and the test items are sectioned to address subsumed objectives sequentially, so that easily-calculated section subscores can diagnose the specific problems when total scores are deficient.

For every "bite-sized" competency objective, CCP Lesson Assignments reference an array of print, audiovisual and computer-assisted instructional materials identified through an exhaustive review of commercial and public sector courseware. Hundreds of individual and group exercises, as well as experience-based learning activities, are also included as CCP Supplementary Activities to be used at the teacher's discretion to augment referenced materials.

The CCP Information System minimizes the paperwork and time required for individualized lesson planning and tracking. The user-friendly CCP Computer Systems for the Apple computer automate test-scoring, lesson assignments, recordkeeping and reporting, analysis, management and communication among users.

The CCP Learning Centers which use this system are the "high-tech" equivalent of the traditional "one-room schoolhouse." While varying in size, inventory and institutional setting, most have a comprehensive inventory of print and audiovisual materials usually spanning the entire array of subjects and ability levels covered by the CCP, and most are also equipped with several different types of computers and software for instruction. These varied learning materials are referenced into the CCP Lesson Assignments so that there are options available for each instructional objective. The CCP Mastery Tests provide the means for determining where a learner should start and how fast he or she should progress. A CCP Plan and Profile form details the prescriptions for each learner, who then maintains time and progress information on the same form. And the CCP Computer Systems automate most time-consuming functions. Hence, the teacher has the time and tools to handle a diverse group of learners, studying different subjects, at different difficulty levels.

These CCP Learning Centers can be used in many ways. They can provide core instruction or serve as an adjunct to other education and training components. Instruction may be offered on a drop-in basis, regularly scheduled a few hours a week, or assigned as a full-time activity. Participation can last from a few weeks to many months; it can even be sequenced over a multi-year period. The CCP is completely modular so that any combination of its units can be implemented in a learning center or assigned to a learner. And with the help of accompanying technical assistance and training systems, the CCP can be implemented in almost any institutional setting and applied to instruct almost any learner population.

Thus, the CCP seeks to integrate all of the prescriptions identified by education research so that CCP Learning Centers can deliver a comprehensive treatment for basic skills deficiencies:

With CCP, instruction is individualized and self-paced so that every learner can focus on just what is needed, taking as much or as little time as is necessary to achieve mastery.

Using the diagnostic power of the CCP Mastery Tests, it is easy to determine what each entrant already knows so that instruction can begin at the appropriate point in the hierarchy of sequenced competencies, rather than wasting time covering already-learned skills or trying to forge ahead without the necessary prerequisites. Each lesson assignment addresses a "bite-sized" learning objective within the hierarchy, so that learning occurs in small, sequenced steps. The unit test checkpoints after several lessons, and level test checkpoints after several units, assure that learners have not missed a step, but also permit them to step ahead as soon as they can demonstrate mastery. In a CCP Learning Center, each learner may be working on a different objective and progressing at a

different rate, but no one else need know. Some CCP Learners advance quickly, others more slowly, but all can move at whatever pace is most comfortable.

CCP instruction can be conveniently and flexibly delivered on an open-entry/open-exit basis.

A learner can walk in the door of a CCP Learning Center on any day and be enrolled and working in an appropriate assignment within an hour. There is no need to wait for a group with similar need to be formed or for a new class to start up; the learning center can meet the needs of almost any learner as soon as there is an empty seat during open hours. If there is a specific learning objective, such as passing the GED, or attaining a tested competency level to qualify for entry into training, college or a job, only the needed competencies will be assigned and the learner can exit as soon as they are mastered. There is every reason to work hard, since the more the learner puts in, the sooner he or she can attain any objective. Hours of instruction can be scheduled to mesh with work, school or family requirements. If attendance is interrupted, the learner does not fall behind, but simply picks up later where he or she left off. The "one-room schoolhouse" does not require much space so it can be sited in almost any community institution or workplace to make learning more convenient.

A CCP Learning Center can offer instructional options to meet widely varying individual needs and preferences.

The CCP includes reinforcing academic and functional approaches, the first teaching the 3R's as an end, but including practical applications as an instructional means, and the second teaching practical skills as the end, with the 3R's presented as a means to functional competency. For each bite-sized academic and functional objective, from number recognition to sines and cosines, from reading a want ad to interpreting elementary computer programs, the CCP Lesson Assignments present a menu of recommended and alternative print, audiovisual and computer-assisted instruction materials (including software of varying types for a range of computers). Readily at hand are the hundreds of CCP Supplementary Activities which can be used for individual practice, group activities and experience-based learning. A typical learning center will have a diversified inventory of print and audiovisual material and CAI lessons, often including several different types of computers for instruction. Hence, a learner can choose, or an instructor can prescribe, the types of materials and approaches which are best suited to an individual's learning style and preference.

CCP demands and supports extremely detailed tracking of learner inputs and outcomes, providing immediate feedback and the potential for an extraordinary degree of accountability.

Time-on-task in each CCP Lesson Assignment is recorded for each CCP Learner. The assigned materials contain mastery checks for each lesson, and the CCP Unit Mastery Tests covering several related lessons are sectioned so that sets of items relate to and evaluate mastery of each subsumed objective. Thus, the tests indicate overall accomplishments as well as the specific areas where further work may be needed. CCP Learners take the CCP Unit Mastery Tests often, usually every five to ten hours of instruction in a subject. CCP Level and Strand Mastery Tests given upon completion of subsumed units and sectioned to assess mastery of each grouping of objectives, provide another checkpoint and more feedback. The CCP Computer Information System checks tests in less than 30 seconds, so that there is no waiting for results. All test results, including answers on every item, are stored by the CCP Computer Information System and are accessible to the instructor in seconds. The CCP Plan and Profile form is updated daily to provide up-to-the-minute information on each learner's progress through CCP Lessons, Units, Levels, and Strands while also providing immediate guidance about what each learner should be doing every step of the way.

The CCP is designed to enhance learner efficacy by giving each individual responsibility and control.

Upon entry, each learner's needs and abilities are assessed using the CCP Mastery Tests and an individualized CCP Plan and Profile is developed with the participation of the learner specifying clear learning goals for each needed subject. The learner then tracks his or her daily time and progress relative to these goals. Each step of the way, a CCP Lesson Assignment presents a menu of courseware choices which can be selected by the learner alone or in conjunction the teacher, so the individual can exercise choices. The CCP Instructional Materials are organized and referenced so that learners can locate their own assignments. Because the assigned material for each lesson contains its own mastery check, learners are responsible for judging when they have satisfactorily mastered each lesson objective. They then take a CCP Unit Mastery Test which tells them whether they need more work, and since they cannot progress until mastery is demonstrated, they must assume individual responsibility for diligence in mastering lesson materials. The tests are scored automatically, eliminating any subjectivity and providing the learner the information needed to understand what they have missed and to remediate by reviewing another of the courseware choices for the objective(s) not mastered. Able to set the pace of their own progress, and to exit upon achieving agreed-upon goals, learners can control their destiny within the CCP Learning Center.

CCP Learning Centers can achieve much greater time-on-task during instructional hours than traditional classrooms.

With CCP, each learner has an individual set of assignments, and picks up each day where he or she left off previously. A learner can come and go without disrupting others who are involved in their individual assignments. Since progress is self-paced, the slow learners are not frustrated and the fast learners are not bored, so there is little reason for disruption. Because progress is based on what is learned, not the number of instructional hours completed, learners have every incentive to apply themselves, and because the CCP is so tightly sequenced, the assigned tasks are neither too easy nor too hard. The CCP and the CCP Learning Center are organized systematically so that learners can efficiently access their assignments and materials and even check their own tests instantaneously, so that they rarely need wait for the instructor or the rest of the class. The instructor's primary role is to provide one-on-one assistance when needed, so that questions do not disrupt other learners and there is less waiting for teacher availability.. Because all subjects can be covered in a single learning center, it is not necessary to move from classroom to classroom, so transition downtime is minimized.

CCP provides the tools and time for good teachers to assess and address individual learner needs.

Where the teacher in a traditional classroom must spend hours outside the classroom in lesson and test preparation plus test-checking, and must spend most in-class time giving group instruction, the teacher in a CCP Learning Center does not have to prepare lessons or tests and group instruction is provided as a supplement rather than a core activity, so that almost all working hours are available to address learner needs. Most routine tasks are automated and learning centers can use paraprofessionals effectively to free instructors completely for one-on-one teaching. With more efficient use of staff, it is possible to maintain higher teacher/learner ratios. Learners are self-directed so they only call on the instructor's time if one-on-one help is needed. When it is, the CCP Mastery Tests and CCP Information System allows the instructor to assess each learner's needs immediately and precisely. There are, then, a host of materials to draw from to help in tutoring.

CCP is structured to reinforce learning achievements and facilitate positive interventions by CCP Learning Center staff.

CCP Lesson Assignments break down learning into objectives and materials which can usually be mastered easily in a single learning period; hence, learners realize a sense of motion and progress each time they return a material, get a new assignment and locate the next material. After each lesson, time is entered on the CCP PPlan and Profile form documenting time-on-task and progress. CCP Unit Mastery Tests come at frequent intervals. If they are passed, they provide a printed record of accomplishment with no waiting. If they are not passed, the results are known only to the instructor and learner, not other participants, and

because the tests are sectioned to address subsumed competencies, they usually document positive accomplishments in some of these areas and narrow the scope of needed remediation. "Failure" is not of lasting consequence, since it only means that some lessons will require more work, not that the learner is falling behind the class. When learners pass CCP Unit, Level and Strand Mastery Tests, the instructor initials the CCP Plan and Profile form, providing frequent opportunity for positive reinforcement. Awards can be provided for Level and Strand completion as well as overall learning achievement. Since most learners move along on their own, instructors have time to work with slower learners and then to follow-up to check on and reward their progress. Upon termination, the printed CCP Participant Record documents the accomplishments of each learner.

The CCP approach and tools facilitate the establishment of a structured and supportive CCP Learning Center environment.

Because instructors and aides are freed from lesson planning, test-scoring and group lecture, they have time for one-on-one contact and can establish rapport with individual learners. With individualized instruction, any personal problems affecting learning can be identified and addressed quickly. Each learner is progressing at his or her own speed, minimizing the frustrations of slow learners, the boredom of fast learners, and the disruptive behavior of both. With competition between learners eliminated, peer support can replace peer pressure. With the open-entry, open-exit approach, plus frequent feedback, learners have every reason to apply themselves, and if unable to do so on a given day, they can leave and pick up another day without loss to themselves or others. The computer scoring of tests removes the subjectivity in the instructor/learner relationship, reducing another source of friction. Finally, because CCP Learning Centers can deliver more "bang for the educational buck" than traditional classroom educational programs, they can generate net revenues from basic skills instruction which can be used for needed counseling and other supportive services.

CCP instruction is relevant to and can be effectively integrated with work, training and other education activities.

The functional component of the CCP is structured to address the competencies necessary for success in the home, workplace and community, while the academic component is structured to prepare learners to meet the benchmarks and attain the credentials required for access to jobs, training and school. A primary factor in the selection of materials referenced into the CCP was their practical relevance. With the comprehensive menu of objectives covered by the CCP, it is possible to select and deliver only those needed by each learner to achieve his or her goal. Because CCP instruction is open-entry/open-exit and can be flexibly scheduled, and because CCP Learning Centers can be established in almost any setting, it is feasible to integrate basic skills instruction with other work, training and education activities.

APPLYING THE REMEDIES

There is no assurance that these separately effective ingredients can be successfully integrated nor that their impacts are additive. The CCP was designed to facilitate individualized, self-paced and self-directed instruction, delivered on an open-entry/open-exit basis, maintaining high time-on-task and accountability, providing a variety of courseware options combined with one-on-one teaching plus positive reinforcement, in a structured and supportive learning center environment integrated with other work, training and education activities. But given the complexity of the prescriptions and the diversity of CCP applications by so many different institutions to serve so many different learner populations, it is reasonable to question whether the CCP really delivers all the promised ingredients, and whether they have their desired effects.

To help answer these questions, a national sample of CCP Learners was surveyed in the Summer of 1985 to determine perceptions of the CCP approach and its effectiveness. A total of 390 CCP Learners from 16 different centers responded, representing one-fifth of enrolled learners and one-third of CCP Learning Centers with enrollees. To provide more personal insights, all CCP Learners terminating in 1985 were requested to submit retrospective narratives presenting their views about the self-paced instructional approach, the tests and materials, the adequacy of staff, the learning environment and the linkages between learning and other activities. Nine hundred CCP Learner Narratives were submitted in 1985 by participants in 35 different CCP Learning Centers, thus representing a fifth of all terminees and a third of users. Neither the survey nor the narratives followed rigorous sampling and research procedures, but both sought to solicit negative as well as positive opinions and to avoid any obvious sources of bias. With their relatively large samples, and the balance of quantitative and descriptive information, the results represent a reasonably accurate picture of what is really happening where it matters most— in the minds and perceptions of learners. Encouragingly, both the survey and the narratives suggest that the CCP and CCP Learning Centers are delivering the prescribed elements of effective education:

Individualized, Self-Paced Instruction

The respondents to the CCP Learner Survey are overwhelmingly positive about the CCP approach to learning which teaches them just what they need and lets them progress as rapidly or as slowly as they master competencies:

- * The learning center allows me to learn more quickly because I don't waste time on learning things that I already know.

Agree strongly	55%
Agree somewhat	31
Disagree somewhat	5
Disagree strongly	2
No opinion	7

- * I work at my own pace and I do not feel pressured to compete with other learners.

Agree strongly	72%
Agree somewhat	19
Disagree somewhat	3
Disagree strongly	1
No opinion	5

- * The learning center allows me to take all the time I need to learn my assignments.

Agree strongly	69%
Agree somewhat	21
Disagree somewhat	3
Disagree strongly	3
No opinion	3

- * The learning center focuses on me, my needs and my style of learning.

Agree strongly	55%
Agree somewhat	29
Disagree somewhat	7
Disagree strongly	2
No opinion	7

Almost all CCP Learner Narratives praise the individualized, self-paced instructional approach. While a handful of respondents would apparently prefer a traditional classroom, the strongly positive views of the following CCP Learners are typical:

The atmosphere is relaxing. There is no peer pressure or competition among students because everyone works at their own level of understanding...My experience here has taught me that education can be constructed in a way where everyone can learn all that they can, as much as they can, if certain rigid standards are done away with in the education system...I think if this type of method of learning were tried in public school, it might decrease some of the pressures students experience and they would concentrate more on learning and retaining what they learn, instead of trying to keep up with someone else's level of understanding. People learn at different paces, and certain subjects are more appealing to some, than others. And education should bring out the best qualities in everyone, so they could contribute to society, the best of themselves.

Nona B. Pina
New Bedford, Massachusetts

I enjoyed working at my own pace. It made me feel much more comfortable with myself. When I had a certain part of my problem that I didn't understand, I could take my time and review it more carefully. I did not feel pressured or rushed.

Lori Acre
Muskegon, Michigan

I like to work at my own pace because if I don't understand something then I can keep working on that subject until I really know how to do it. I like to see my test scores quickly because if I failed then I can study the subject over again. I feel that I have learned quickly because I worked at my own pace and that it is easier for me because if a teacher stands up in front of the classroom, they either don't explain it right or they talk too fast. If I teach myself then I can do it myself and I understand it better.

Karen Beaulieu
Bangor, Maine

This program allows a person to move at his own speed. Some people need more time than others, and the program allows for that. Some people can't handle being rushed, like me. If I'm being rushed then I get nervous, can't think right, and I seem to make a lot of mistakes.

Arthur Crider
Muskegon, Michigan

Moving at your own pace was nice. It helps those who needed longer time to do so without being pressured. It also is useful because a person doesn't have to wait and can advance to better achievements... If this system were to be issued to all public schools here, the percentage of high [school] grads would probably increase. Students would have more enthusiasm in what they do because they're working on their own under [a] different type of atmosphere.

Kevin Carrington
Milwaukee, Wisconsin

I liked working at an individual pace. I had no one I was trying to outdo. This was the case in high school and in college. There always existed one person I had to do better than all the time. I always had a rival to compete with. Since there was nobody taking the same [subject] I could work at ease. It was a pleasure knowing that I did not have to get a certain score in order to feel good about myself.

Marjorie Murphy
Bangor, Maine

Open-Entry/Open-Exit, Flexibly-Scheduled Instruction

CCP Learners, with their varying work and family responsibilities, personal problems and goals, appreciate the flexible scheduling possible with the CCP, as well as the convenience of the CCP Learning Centers. They are more motivated to learn because they can move on to other pursuits as soon as they can achieve learning goals:

- * One reason the learning center is better than the regular school classrooms is that if I miss a day, I can come back and pick up where I left off.

Agree strongly	78%
Agree somewhat	14
Disagree somewhat	3
Disagree strongly	3
No opinion	3

- * In the learning center I can work more or fewer hours some days and weeks depending on my needs.

Agree strongly	47%
Agree somewhat	26
Disagree somewhat	10
Disagree strongly	9
No opinion	8

- * The learning center hours and location are convenient, making it easier for me to attend and learn.

Agree strongly	49%
Agree somewhat	30
Disagree somewhat	9
Disagree strongly	4
No opinion	8

- * I work hard in the learning center because I can move on and out as soon as I learn what I need.

Agree strongly	63%
Agree somewhat	26
Disagree somewhat	4
Disagree strongly	3
No opinion	4

Many of the CCP Learner Narratives detail the "real-life" problems and concerns which make the flexibilities and convenience of CCP Learning Centers so important, as well as illustrating how CCP Learners can be motivated by being able to move on and out as soon as they master needed competencies:

The thing I liked most about the Comprehensive Competencies Program was the hours offered. I felt that it was very convenient for me. The atmosphere was very comfortable. I could come in and go straight to work and that made me relax more.

Brenda L. Bryant
Milwaukee, Wisconsin

I find the time I spent wasn't a hardship because I am a wife and mother and couldn't spend a whole day, each day, for weeks in school.

Nora Lee Giles
Bangor, Maine

The reason I enrolled in the learning center program was to get my GED. I also wanted to take up a secretarial science class...I think doing your work at your own pace was an excellent idea! It helped benefit me because I have a family to care for... Keeping track of my assignments and time determined how long I would be at OIC. I think it's better than having to go to school for years. Everything that I learned was somewhat easy. That made me learn more quickly... [and] that made me want to fulfill my goals more. Now, I'm taking a secretarial science class. After the class ends, I hope to have a job paying good money.

Stephanie Goodman
Milwaukee, Wisconsin

The Comprehensive Competencies Program is better than the public school system for me because it is an individual study program which allows me to work at my own pace which is better because I tend to learn faster than others. I plan to go to college and with the help of the learning center and the people here, I am able to reach my goal and I have also avoided an unnecessary year of high school.

Roberta Burlos
Buzzard Bay, Massachusetts

While in public schools when you receive an assignment it usually has to be finished the same day or you have to take it home and have it prepared for the following day, but with LOC it's a continual day-to-day process. If not finished on the first day, you just mark the time you put in on your work and where you left off and prepare to continue for the next day. But the best part is there's no takehome assignments and that's a relief.

Kim Ingram
Milwaukee, Wisconsin

I enrolled in the learning center program to study my GED. I quit school over twenty years ago after finishing the eighth grade. I found that without a high school diploma a person wasn't going to get far in the world. When I entered the learning center I expected it to be like the rest of the adult ed classes that I had enrolled in through the years. I was surprised to find that you worked at your own pace...When I found out I only had to study in the areas that my scores were low on I felt I was already half-way there. In less than two months I passed the test for my GED and I am now over half-way through a course as nursing aide and I plan to go on for my LPN. If someone had said to me a year ago that I would be where I am today, I would not have believed them. Thanks to the center, in the last three months I have accomplished more with my life than I did in the past twenty years.

Charlotte M. Wilson
Milo, Maine

Varied Instructional Materials and Media

CCP Learners include the young and old, the employed and unemployed, displaced workers and displaced homemakers, illiterates as well as the college-bound. Not surprisingly, they vary significantly in their self-perceived abilities and learning styles:

* How do you rate yourself as a learner?

Excellent	8%
Good	29
Average	41
A little below average	16

* How do you learn best?

Listening to a teacher talk to a class	11%
Studying and talking with a group of friends	14
Working on my own	34
Doing a job or activity	23
Getting tutoring or one-on-one instruction	18

Yet the instructional resources of the CCP Learning Centers were able to accommodate this variability in learning styles and needs:

* I think that the learning center uses a good variety of materials and they are easy to understand.

Agree strongly	47%
Agree somewhat	34
Disagree somewhat	9
Disagree strongly	6
No opinion	3

* I like computer-assisted instruction more than learning from books alone.

Agree strongly	39%
Agree somewhat	33
Disagree somewhat	15
Disagree strongly	6
No opinion	7

- * The books and materials in the learning center are more closely related to what I need to meet my life goals than the books and materials in regular school.

Agree strongly	38%
Agree somewhat	38
Disagree somewhat	12
Disagree strongly	5
No opinion	7

The CCP Learner Narratives are generally positive about the resources provided in the learning centers, particularly so about the opportunity to use computers:

Initially, I was interested in learning all I could about computers, but there were so many other practical subjects, I didn't know where to begin. I needed a lot of help in math, so I decided to work in that subject. Then I realized I could use some help in consumer economics. My counselor would sit down with me and discuss my needs and interests. Whatever subject fit in with them, I would be assigned to work in...The material was all very easy and clear to understand. There was a large variety of it to keep my interest. The supplementary material was very interesting...Because of the learning center, I am able to balance my checkbook properly and keep a budget. I know how to seek and obtain a job. My math skills have improved and I obtained my first experience with a computer.

Suzanne Bchuki
East Sullivan, Maine

The books and learning aids provided are also excellent. They start off very simple, and become more complicated, as your learning increases. They provide you with problems and experiences that you can relate to in everyday living.

Nona R. Pina
New Bedford, Massachusetts

The CCP program is a very complete way of getting the information to the people [who] need to learn. To teach all different levels of education to all people in my class would have been impossible. The grade levels ranged from 6th grade to 12th grade or higher. There would have been a need for at least 20 classrooms if it were taught in the traditional manner.

Marjorie Murphy
Orono, Maine

The learning center was a great help to me. The teachers and counselors were all very helpful and I was able to learn a lot. I had a hard time with English and my teachers saw that, so they gave me learning material on what I was having trouble with, so I was able to learn more. The learning material was great and easy to understand. I loved working on the computers. When you did an assignment on the computers, by the time you got off, you knew your assignment. It was great.

Jean DuFour
Bangor, maine

The new computer system is a big plus. Today almost everything is run by computers. We have computer cars, computer gas stations, computer cash registers and many more things. So it's very wise to have students learn something about computers. I enjoyed working on each computer.

Michael Friends
Milwaukee, Wisconsin

I have only positive things to say concerning the CCP program. The teaching materials were excellent and covered a wide range of subjects. But it wasn't all academic, there were functional things as well. Learning academics is fine, but you also need knowledge pertaining to how to write a good resume and have a good job interview. The computer programs were beneficial and offered a change from books and paper.

Brenda Nadeau
Bangor, Maine

Feedback and Accountability

The respondents to the CCP Learner Survey are surprisingly positive about the CCP testing and recordkeeping requirements. They recognize and appreciate that the tests give them a clear indication of where they stand and where or whether further work is required on an objective or set of objectives, and that because of the CCP systems, staff can quickly identify and respond to problems while both staff and learners can understand and be accountable for their activities in the CCP Learning Center:

- * The many tests help me to know what I have learned and where I need more work.

Agree strongly	74%
Agree somewhat	19
Disagree somewhat	3
Disagree strongly	1
No opinion	3

- * I like to take tests, even if I do not pass the first time, because it is the best way to know whether I have learned a skill.

Agree strongly	59%
Agree somewhat	26
Disagree somewhat	6
Disagree strongly	6
No opinion	3

- * When I have a problem with an assignment in the learning center, it takes a long time before the instructor or other staff give me help.

Agree strongly	9%
Agree somewhat	14
Disagree somewhat	17
Disagree strongly	54
No opinion	5

- * Staff and learners in the center usually know what they are supposed to be doing.

Agree strongly	58%
Agree somewhat	29
Disagree somewhat	6
Disagree strongly	3
No opinion	4

"Too many tests" and "too much recordkeeping" are traditional student complaints, so the minimal number of negative comments about CCP tests and recordkeeping requirements is, itself, proof that the value of these facets of the CCP is recognized. But many CCP Learner Narratives go even further in praising these mechanisms for feedback and accountability:

Seeing your test scores quickly aids in your moving on and progressing, instead of having to wait one or two days for your test results. I think the computer scoring system is an excellent method of scoring tests. I enjoyed Keeping track of my assignments and time, because you were never held up waiting for the teacher to give you your assignment, because he or she really does not have to keep track of assignments or time.

Clemmie King Jr.
Muskegon, Michigan

Another aspect of the Comprehensive Competencies Program is the testing. I learned a lot from taking tests. When I thought I had something down solid and didn't, it would show up. I then knew something wasn't sinking in. An additional plus is the readily available test results. With the answers right there to check out at the time of testing, the information is more comprehensive.

Vickie Fowler
Bangor, Maine

I sometimes dreaded seeing my test scores because I knew there were some things [I] shouldn't have missed or there [were] problems I knew I had missed and couldn't put my finger on. When the correct answer was shown to me, I would say, "So, that's how it's done" and I would start over again. Keeping track of assignments was difficult at first, but when I look at it from another viewpoint, it was a challenge [and] when I figured [it] out it [was] simple.

Debra Harvey
Chicago, Illinois

I enjoyed seeing my test scores quickly and before the instructor. It gave me the opportunity to look back over any questions I might have missed. I would not have had that opportunity in a classroom situation. I enjoyed Keeping track of my assignments and time. I felt that it made me more responsible. In some subjects, I found that I learned quickly. In some others I did not. I also found out what I had forgotten and what I had not. That was important to me since I had been out of school for 23 years. I felt that I had forgotten everything and it was encouraging to me to find that I hadn't.

Ann Anderson
Bangor, Maine

What was real nice [was] not having to wait for a couple days to get your test graded. All you had to wait was a couple of seconds for the computer to grade your test. Keeping track of my own time and lessons was nice. That way you were independent and did not have to ask the instructor what you had to do next.

Princess Ann Bosse
Muskegon, Michigan

I really like seeing my test scores quickly. In regular school you might have to wait a week but the learning center showed you what you got on a test in a matter of seconds.

Kim Barboza
East Fairhaven, Massachusetts

Self-Directed Learning

CCP Learner Survey respondents take primary responsibility for day-to-day learning activities, tracking their own time and assignments, finding assigned instructional materials, scoring mastery tests and reviewing results to see where further work is required, and learning independently except when problems are encountered:

- * I keep track of my own time and assignments and I always know what I should be doing.

Agree strongly	51%
Agree somewhat	37
Disagree somewhat	6
Disagree strongly	2
No opinion	4

- * I always know where to find my assignments and learning materials in the learning center.

Agree strongly	47%
Agree somewhat	36
Disagree somewhat	11
Disagree strongly	4
No opinion	2

- * I like the tests used in the learning center because they let me know what I have learned and when I need more work.

Agree strongly	74%
Agree somewhat	19
Disagree somewhat	3
Disagree strongly	1
No opinion	2

- * In the learning center, I can learn most skills using the books and computers on my own without much help from teachers.

Agree strongly	36%
Agree somewhat	40
Disagree somewhat	8
Disagree strongly	12
No opinion	4

As a consequence of this self-directed learning approach, CCP Learners feel more responsible for and in control of their learning progress, which, in turn, makes many feel better about themselves and their potential. "Being in control" is a consistent theme of the CCP Learner Narratives:

Working at your own pace was the most beneficial part of the experience. I could not fall behind. I could learn and comprehend at my own rate. With this I learned quicker and easier. I could come to grips with the challenge and put it in my own terms. Keeping track of my own time made my rate of study good. I could study the hardest subjects longer and I could study the easier subjects less. Overall, that part was very beneficial...Setting my own goal was the major factor to learning quicker. I did not have to compete for something I did not understand. That made me feel better about going to school for the first time in 16 years...I feel better about learning now for the simple reason that I feel I can master learning. I know that if I manage my own time and work at my own speed I will meet the goals I have set for myself.

Tex Gwenn Thompson
Bucyrus, Ohio

After just one day of learning to read and follow the teaching materials, I was well on my way...I like the way the whole program is set up. I came into the program as an adult and because of being able to move at my own pace, keep my own records, search out my own learning materials, I will leave here a much more confident person.

Sharon Bickmore
Bangor, Maine

I like working at my own pace. It makes me think that I am a real boss keeping track of my own work.

Darryl Carter
Wilmington, Delaware

I enjoyed reviewing my marks on tests given me in class, which helped me brush up on weak spots to improve myself. I loved doing it this way without the teacher-student relationship which I strongly feel causes many young people to simply drop out! Personality conflicts ought not to enter into the picture whereby a person graduating or not graduating becomes the sadness of their lives.

Phyllis Shaw
West Yarmouth, Massachusetts

Being able to be my own teacher was great. By doing this I developed a lot of self-discipline. I know I had to do something and I did it.

Cynthia Adams
Bangor, Maine

The learning center helped me get organized. We kept track of time on one subject. I learned to be on time and be responsible. I always got help when I needed it. In one week I was finding my own material for what I was working on.

Scott Hathaway
LaGrande, Oregon

Since enrolling at the center, I've begun to realize how much I enjoy it. I can work at my own pace, and also see my test results right away. This way of testing helps me to pinpoint my weaknesses and to brush up on them. I also like the idea of keeping a record of my own time I spend on each subject, which tells me which ones I am still weak in. Another reason that I feel this is a good system would be that we should all be somewhat responsible for our actions. We are adults, not children. The teachers are busy enough as it is and should not be expected to spend the time keeping track of us.

Dolores McIninch
Milford, Maine

Time-On-Task

CCP Learners are able to understand and use the various CCP referencing and organizational systems very quickly so that they can get to work and efficiently manage their learning time. The CCP Learner Survey respondents indicate that a "no-nonsense" approach is maintained in the CCP Learning Centers, so that applied learning time is maximized:

- * My time at the learning center is spent with few interruptions.

Agree strongly	43%
Agree somewhat	35
Disagree somewhat	8
Disagree strongly	7
No opinion	7

- * Too much time is wasted at the learning center on getting assignments, scoring tests and keeping records.

Agree strongly	5%
Agree somewhat	16
Disagree somewhat	23
Disagree strongly	49
No opinion	7

- * In the learning center, how long did it take you to learn how to get assignments, keep track of time and to find the right tests?

A day or less	41%
Several days	30
A week	13
Several weeks	2
Still do not know	9

- * Most learners cause fewer problems and waste less time in the learning center than in regular school.

Agree strongly	45%
Agree somewhat	28
Disagree somewhat	12
Disagree strongly	9
No opinion	7

In their narratives, CCP Learners frequently note that they are able to apply themselves more in the CCP Learning Center than in traditional schools because the learning system and environment encourage hard work:

This center has given me more than hope. It has presented to me a second chance to live, to better my thoughts [and] has given me knowledge. I now can lift my head because of what the center has put into me.

The staff, of course, are very helpful. They make sure that you have everything you need to get through the day. The other students here have positive thoughts. Because of the center and staff, there's never nothing for you to do. Work is time and time is learning.

Parrie Walston
Detroit, Michigan

It is easy to work in the class because we have time to work at our own speed. I just set my speed and keep moving right along. I think it is nice to have a little responsibility. It gives me a sense of well-being. I learn from my own mistakes. I can keep track of how much I do in a certain amount of time. It makes me aware of my own speed in doing work. I sometimes find it hard to stay on task because I get tired of doing just work, so I will talk a little. Then Jill will come over to my desk and get me on task again.

Robert Shadwick
LaGrande, Oregon

Seeing my test scores the same day, in fact seconds after testing, is really great. I like keeping track of my own assignments. This way I know where they are and I can get them myself without asking someone or having to wait for them. I get them myself and start to work right away fast.

Victor Lagarra
New Bedford, Massachusetts

Working at my own pace gave me the chance to concentrate on the material I needed to know. This is better than the classroom where you had to be ready for something even if you did not know it. Seeing my scores almost immediately after taking a test was terrific. Everything was fresh in my mind and I could easily figure out my mistakes. The CCP classes were better structured for me than my high school classes were. The atmosphere was calm and people were more relaxed...I think that high school classes should be more like CCP classes.

Lorna Buzzell
Bangor, Maine

I think that the learning center has helped me to learn those things I had not learned in the day-school. I like learning on my own. The day-school was too complicated and rowdy. The learning [center] is nice and quiet. You can get your work done with no problem. It was also hard on me [in day-school] because it seemed like when you would ask a teacher something they would be so aggravated from the students, they acted like it was so hard to answer your question. Learning as one has taught me to be more dependent on myself. I feel I'm getting more accomplished because I don't have to worry about 'Is there someone who knows more than I do?' If there were more schools like the learning center I wouldn't mind going to school at all.

Sobreta Owens
Brooklyn, New York

The class is set up beautifully and is always clean. The books are set up so you can easily find them. The computers are easy to control. I also get along with the students here at the center. We are just like a family here. We help each other. The rules are nice and Mr. Param Anatham, who is the Director here, is really keeping the center looking good [and helps] by making sure students are here on time, by making sure student attendance is good and by giving students bus fare to get here if they don't have it. The staff here are nice and they work harder than anyone else I have ever seen... The testing area is set up nice, where you can test alone without being disturbed... To me, this center is the best GED program in Detroit. Mostly, everyone comes here to learn and it is worth it.

Lance Johnson
Detroit, Michigan

I liked the atmosphere in the classroom—quiet—and most people were there to apply themselves and get to their goals. I think being responsible for your own learning, with all the materials that were available (books, computers, etc.) was fantastic; it makes a person want to learn.

Lisa Klein
Muskegon, Michigan

Individual Attention

Learners are extremely positive about the individual attention received in the CCP Learning Centers. Not only do staff offer help when problems are encountered with assignments, but they generally demonstrate caring and concern for each learner's goals, interests and needs:

- * The staff at the learning center are always there to help me when I run into a problem with assignments.

Agree strongly	65%
Agree somewhat	24
Disagree somewhat	4
Disagree strongly	6
No opinion	2

- * In comparison to other teachers that I have had, the learning center staff seem to care more about my learning goals.

Agree strongly	64%
Agree somewhat	25
Disagree somewhat	3
Disagree strongly	4
No opinion	4

- * The learning center staff care what I feel and think.

Agree strongly	52%
Agree somewhat	33
Disagree somewhat	5
Disagree strongly	3
No opinion	6

- * I believe that the learning center staff understand me and try to adjust to my interests and needs.

Agree strongly	50%
Agree somewhat	35
Disagree somewhat	7
Disagree strongly	2
No opinion	6

Time and again, CCP Learner Narratives give glowing praise to instructors, aides and other staff. CCP Learning Centers aim to combine "high-tech" with "high-touch," and the narratives illustrate how potent this combination can be as well as how frequently it is achieved:

The teachers are really patient, which means a lot to the students. There were several occasions I can remember when I couldn't understand something clearly. The teachers helped me to find a way to approach the subject [and] also to understand the methods we use to reach the solution!...Because it is a do-it-yourself program, you're really the person to decide whether you fail or succeed. But knowing the teachers are interested in what you are doing helps a lot.

Kimberly Barnes
Columbia, South Carolina

During my stay in the Learning Opportunities Center (LOC) I acquired a lot in mathematics and English grammar. I have gained a lot in character I was lacking. The interaction of everyone was most beneficial. The instructors were very helpful. Whenever I was unsure of something, they would assist me to [the] best of their knowledge. They also treated 'me' as an individual. They were there whenever I needed them. I enjoyed it very much. And I have accomplished a lot.

Icilda Nembhard
East Providence, Rhode Island

I enjoyed working at my own pace, but I knew if I had a problem I could ask Ruth Johnson without feeling foolish or having her treat me as if I should know it. I found the staff to be considerate, concerned, encouraging, willing to listen, ready to help, and above all, [to] treat me as an adult and with respect.

Cheryll McLaughlin
Brewer, Maine

The instructors are very nice people and they will help you as much as needed. They are friendly and courteous. I know that they are kept pretty busy with all the students they have in their classes, but yet they will find the time to help you with any problem you might have. I've really enjoyed being a student of theirs...This program is better than other training programs that I have attended...because the instructors seem to understand your needs and they take the time to help you and others as much as possible.

Arthur Crider
Muskegon, Michigan

I have only compliments to say about both instructors. It amazed me to watch them answer the many questions from the people and leave them still feeling good about themselves. Both instructors have my highest regards.

Sharon Bickmore
Bangor, Maine

I would like to truthfully say that our instructor, Jean Stuckert, and her assistant, Leevana Shumaker, are two of the best. They are always there when needed and are more than willing to give help if it is needed. They are dedicated and deserve more recognition than I can express.

David Fulkerson
Galion, Ohio

The high school I went to, the teachers were lazy and didn't care about teaching students. They just cared about getting students into trouble by writing blue cards to the dean. So that's why I left school. At first, I was thinking that this program would be like my old school, but I was wrong. It was different. The teachers would sit down with you and help you with your work and quiz you when you think you're ready. This program increased my grade level. I passed the GED test and received my diploma.

Patrick Ennis
New York, New York

In this program I found I liked it a lot because it is well organized and the teachers are very nice. They don't get upset when you can't understand [what] they have said and they take time with you. And if you need special help, they give it to you.

Tammie Hood
Urbana, Illinois

When I come to the learning center, I can get help when I need it, because in school there is only one teacher in a classroom and you can't get as much help as you want because the teacher may be helping someone else and you will have to wait. In the learning center you can get all the help you need.

Pamela Howard
Brooklyn, New York

Positive Reinforcement

The results of the CCP Learner Survey suggest that in the hands of caring learning center staff who address individual needs in a positive way, the self-paced, self-directed, unbiased approach of the CCP reinforces learners and makes them more confident in their abilities:

- * The learning center staff believe that I can learn and treat me with respect.

Agree strongly	71%
Agree somewhat	22
Disagree somewhat	2
Disagree strongly	1
No opinion	5

- * I like the way tests are scored in the learning center because it is always fair.

Agree strongly	61%
Agree somewhat	25
Disagree somewhat	6
Disagree strongly	4
No opinion	4

- * I do not feel "put down" by people at the learning center because of what I don't know or because I learn more slowly than others.

Agree strongly	70%
Agree somewhat	19
Disagree somewhat	4
Disagree strongly	2
No opinion	5

- * In the learning center, I know I can learn things that were really hard in the past.

Agree strongly	58%
Agree somewhat	32
Disagree somewhat	5
Disagree strongly	2
No opinion	3

The CCP Learner Narratives frequently mention the positive reinforcement provided by the CCP and Learning Center staff, as well as the resulting improvement in their own self-esteem and confidence in their learning abilities:

The instructors are nice and friendly. I feel that if there is someone who is willing to back you up, the Career Access Program must be the place. These people reach out and say, "Hey, I am interested in you. I want to help you." It makes me feel like Mom is here with me encouraging me to go on.

Linda King
Chicago, Illinois

Looking at my test scores was very exciting. It gave me the incentive to go on and be proud of what I had done. I now feel very confident in myself and the work I do.

Gloria Campbell
Rockford, Illinois

In this program, I learned fast and I loved working at my own pace, and seeing my test scores quickly. The teachers here are very nice, and they help you as much as they can. It's not like in school sometimes, where the teachers make you feel like "Don't ask a question," or "If you don't understand, too bad." For myself this program has been the best that I have been in from the time that I started until now. I feel like there's no stopping me now. I feel really great about myself. My ability to learn has risen. I have [brought] my grades up in the course and I feel great for this. My grades in school were not bad but I was on the border. I didn't push myself but [now] I do. In this case it's interesting and fun.

Tracy Beacham
Muskegon, Michigan

I found my instructor, Mitzi, very supportive. I have the highest regard for her and the CCP program. Mitzi helped me to have a better opinion of myself and what I could do if I really put forth the effort. I recommend the program to anyone who wants to better themselves [and] also to build self-esteem!

Susan Brammer
Marion, Ohio

The best part of the whole program was my instructor, Geraldine Kerins. She told it like it was but yet was understanding and caring enough to know what I was going through. She's tough but that's what made her such a great instructor...I want to thank everyone on staff who has helped me in receiving my GED and especially Geraldine. Now it's time for me to use what I have learned.

Deborah Enos
East Falmouth, Massachusetts

I appreciated the independence that I had and being able to progress at your own pace, but also the guidance of the teachers when I needed help and understanding. This program has given me more confidence in my learning abilities, more than I've ever gotten out of my 12th grade education. I feel it is run very well and the people here seem to really care about one's education, especially when they know you're really giving forth your best. I'm planning to continue my education at Muskegon Business College. Without the learning and help I have received in the learning center program, I don't think I would have ever thought I could attend college.

Kristie A. Biron
Muskegon, Michigan

Marlene McDonald, the instructor, is a wonderful teacher. Without her support and teaching I would never have been able to get as far as I have because of [my] lack of learning skills and confidence. She really supports and teaches the students what they need. Doing the tests for her and having her score them so fast bolstered my spirit and helped me on the road to a better job and life. Being able to work at your own pace and not being pressured is best for the student, that and getting one-on-one teaching from Marlene. Public Schools are lacking in that department and frankly it is hurting our children. Thank God for programs such as yours, they are a Godsend for everybody. It sure helps the education and especially a person's morale as you can say, 'Look what I did!' That is what I am saying now and I feel great! I have your program and Marlene MacDonald to thank for my new way of life.

Delfina Mood
Corvallis, Oregon

I really appreciate OIC and all the good employess here for helping me through my month course. My counselors were very helpful and patient and were instrumental in making me want to finish. Thanks a lot Mary Burt— if it wasn't for your help I would still be a flunkie. But now my month is up and I feel a lot more confident about myself. Mustard seed faith?

Jon Tolar
Muskegon, Michigan

Structured and Supportive Environment

Most respondents to the CCP Learner Survey feel that the CCP Learning Center provides conducive setting for learning and offers extra help when needed so outside problems do not intrude on learning:

* The learning center makes me feel like learning.

Agree strongly	64%
Agree somewhat	23
Disagree somewhat	5
Disagree strongly	4
No opinion	4

* The staff of the learning center treat everyone with respect and are treated with respect by learners.

Agree strongly	65%
Agree somewhat	25
Disagree somewhat	6
Disagree strongly	1
No opinion	3

* Most other participants want to learn, and the learning center is set up so they can.

Agree strongly	71%
Agree somewhat	22
Disagree somewhat	12
Disagree strongly	6
No opinion	14

The CCP Learner Narratives frequently mention the structured and supportive environment of the CCP Learning Center, suggesting the importance of this intangible dimension of learning:

What I enjoyed most about the program is the way the people of the PIC/JTPA center really took an interest in how you were doing in your CCP classes and job search classes. The counselors would always let you know when a job came up. That really did help, too... If it wasn't for the warm-hearted, caring people in CCP and PIC I probably would be nowhere in life today. I feel like I can do a lot more things in life now than I ever thought I could before. I also appreciate the bus service that takes me back and forth to school, because without it I wouldn't have any transportation.

William W. Wisniewski
Marion, Ohio

The CCP was much better than any of the other programs I have been in. The atmosphere was a relaxed one, something that I feel students need. I feel more confident about my learning abilities. I attribute this to the fact that my teacher, Mr. Shernerhorn, was a great motivator as well as a friend...A program run as well as this could benefit everybody. I feel that this program is as professional and successful as any in the country.

Mike Costa
Provincetown, Massachusetts

I've seen some of the people come in here so anxious to learn different things, it really makes me proud to be part of CCP.

Beatrice Fogg
Garland, Maine

I first learned about the program from Mary Phillips. I thought the program was just for young adults. She made an appointment for me to get started with a counselor. Arlan Hood was very helpful in getting me started in the program. It took me a while to get glasses because they were quite expensive. I had to borrow a pair from the eyewear center. They were very good to do this... Betty Rambo is also a very good counselor. She helps people get started in a career of their choice. Everyone tries to be helpful in the center if they can. When you have excellent teachers like Ruth Johnson and Debra Wilson giving their time and patience to everyone's needs and wants, you are sure to succeed.

Nancy Verrill
Bangor, Maine

During my two and a half month stay at LOC, I must say I learned a great deal about people, moreso than anything else. It was an enriching experience to be in the presence of different people with a variety of personalities. Everyone was genuinely concerned about each other, and how well we were advancing. Personally, I feel that's one of the most important factors in education, because during my high school years, peer pressure was one of the causes in my lack of interest in studying.

Marilyn Reynolds
Milwaukee, Wisconsin

The staff at OIC have been a great deal of help to me. In order for me to accomplish my goals, I am really glad that I had the chance to get to know them. I will never forget how supportive they have been for me and I thank them all very much. The personnel at the OIC show a lot of dedication to their work but they are never too busy to stop and lend a helping hand to someone [who] needs it. I really believe that if it wasn't for the great support and determination that I received from the staff, and if I had gone anywhere else, I would never have accomplished my goal. There were a lot of times when I just wanted to give up because I really didn't think that I could make it. OIC has helped me acquire the self-esteem that I needed to make myself pass. OIC has contributed a lot to my life besides education that has been missing for a long time.

Diane Cabral
Providence, Rhode Island

The program helped me in more ways than one. Just to watch the people here and their inspiring ways gives me the incentive to do, and want to do more. I've learned more about independence, which I lacked a lot. I've attended other adult programs before, but haven't found any as effective and enjoyable as this program.

Elton M. Kelly
New Bedford, Massachusetts

Work, Training and Education Linkages

Learners usually enroll in CCP Learning Centers to prepare for vocational training, to attain the credentials needed for further education, or to help get a job. For half of participants, CCP instruction is combined with other work, training and education activities. Thus, most respondents to the CCP Learner Survey are very aware of the relevance of what they are being taught:

- * The learning center teaches skills that will be needed in the world of work.

Agree strongly	32%
Agree somewhat	35
Disagree somewhat	14
Disagree strongly	6
No opinion	13

- * I am better able to do things at home and in the community because of what I am learning.

Agree strongly	60%
Agree somewhat	28
Disagree somewhat	6
Disagree Strongly	2
No opinion	4

- * What I learn in the learning center will make a difference in my future.

Agree strongly	64%
Agree somewhat	25
Disagree somewhat	5
Disagree strongly	3
No opinion	4

- * I work harder in the learning center because learning is linked to work, training or other activities.

Agree strongly	60%
Agree somewhat	28
Disagree somewhat	5
Disagree strongly	3
No opinion	5

The individual stories of CCP Learners indicate the central importance of linking basic skills instruction with other goals and activities:

My purpose for enrolling at OIC [was] to get training in the field of cable installation. Cable is becoming very popular in Milwaukee and I decided it would be [an] interesting field of study. Upon my arrival at OIC my score had to be a tenth grade level in math, English and reading. I began learning these skills at LOC. The LOC program helped me learn very rapidly! I was able to advance sooner than I expected. Now I'm out in the cable fields learning to install...Hopefully, now I can get a job doing what I always wanted to do, install cables around the community to provide the people with the best installation procedures available.

Blaine E. Hampton
Milwaukee, Wisconsin

It's important to set goals for ourselves and to be determined to see them met. Entering the (CCP) Comprehensive Competencies Program was an important step for me in that regard. Upon completing the secretarial program in August, I confidently expect to be working in a business facility within 90 days of that completion...The CCP program proved very helpful to me...Although the program is relatively new, it has helped many to qualify for better opportunities in employment as well as other areas of life. The program turns out marketable employees, and that is just what the program is all about.

Brenda Nadeau
Bangor, Maine

I enrolled to better myself and take care of my children. I didn't want to be waitressing when my children were grown and then have to go back to school. I hope when I finish...I can get a better job with benefits and this will help me feel better about myself. I hope my children will remember me trying to better myself and will stay in school and learn. I'm looking forward to working only five days a week, being with my children on the weekend.

Ruth E. Hutto
West Columbia, South Carolina

One day while sitting at home, I got depressed. I thought to myself, "Well, I'm almost 30 years old, my kids are in school, and my class reunion is next year." So I asked myself, "What am I going to do with my life? Do I want a career of [to] be a welfare recipient?" That's when I decided to enroll in the learning center program. I needed to improve my grade level in order to proceed in the career I want, and didn't have 2 years to do it. My goal is to be a computer operator. I don't believe I stuck it out this long because I have no patience. But so far I have enjoyed myself. Oh! Don't get me wrong, I'm learning something too. After leaving here I plan to be a computer operator, making top dollar, but I won't be a welfare recipient. I will be a career woman.

Carolyn Thornton
Milwaukee, Wisconsin

I liked the Comprehensive Competencies Program because I have stayed at home for the past six years to help rear my children and getting out among people again has helped me enormously. I think of CCP as reprogramming me back into today's society.

Edith Fay Zavatsky
Brewer, Maine

I enrolled in [the] Comprehensive Competencies Program to bring my grades up in math and reading. Back in November of 1984, I took an assessment test and was told I didn't have the grade level to enter the business school, Kenyon-Campbell. I also was told I had to bring up my reading and math skills, then I would be qualified to enter school. In order to bring my grades up they suggested I enter CCP for a few months.

Cecilia Alves
Wareham, Massachusetts

I was out looking for a job one day and I happened to stop at Midlands Technical School to see if I could afford to take a typing course, and the lady in the office asked me if I could qualify for the JTPA program. I told her a little about my past, and she said that they were giving a test that day for a retail sales class that was going to start. I took the test and failed the math so they sent me to OIC to upgrade. The little studying on the subject has helped me tremendously. I took another test after studying for two weeks. This brought my grade up to passing and qualifies me for the retail sales course that is being given at Midland Technical School. I consider myself very fortunate to be able to participate in a program that will help you to get a better job.

Dorothy Nettles
West Columbia, South Carolina

I think this is a good placement for youths. You learn new experiences, for example, working with computers. I like the fact that the staff send you to another training program after you finish your GED, for training and job placement. This program has a lot to offer. [It] is a very good start for someone who wants to make it in life. I plan to leave this program with stars in my eyes and heart.

Juakson Denise Carpenter
Detroit, Michigan

I enrolled in the learning center because some of my functional knowledge was deficient...to get in a job training program...What I lacked was consumer economics... I have learned, though, so that when I go to buy insurance I will know exactly what I am getting and exactly what it covers. I feel more comfortable about talking and inquiring about insurance without sounding like I do not know anything or like I was bluffing my way through. I have learned a great deal about cars and car dealers. I had no idea some of the things some car dealers do to fool the naive customer...The subjects I studied were very beneficial because I am looking for a car and I am inquiring about health insurance.

Marjorie Murphy
Orono, Maine

I have learned more about how the Government of the United States functions, and for the first time this year I got involved in elections.

Kimberly Barnes
Columbia, South Carolina

I enrolled in this class to learn about health and nutrition. One purpose was to help plan a well-balanced menu at Farm House Restaurant. I am learning how to cook and I feel the program helped me understand the different food we need each day...The information I read was really interesting. I am also interested in going to school to be a nutritionist.

Jeff Davis
LaGrande, Oregon

SUCCESSFUL REMEDIATION

These survey responses and narratives leave little doubt that the CCP and CCP Learning Centers deliver the prescriptions specified by education research. Those who are being treated certainly believe that the prescriptions are valuable. But the real clinical test is whether the symptoms have been significantly alleviated and whether they have recovered enough to more fully participate in the labor market, home and community.

One thermometer uses the quantitative measures of education researchers—learning gains on nationally-normed tests. This indicates substantial recovery. The first 3000 terminees of CCP instruction averaged a 1.2 grade-equivalent improvement in reading competencies, and a 1.5 grade gain in math in an average of only 110 hours of instruction. Compared to the remedial education goal of achieving one grade gain in each 100 hours of instruction in a subject, CCP Learners averaged a 3.1 grade improvement per hundred hours in reading and a 4.6 grade improvement per hundred hours in math.

According to analyses of national longitudinal data tracking a cohort of young Americans over a number of years, each grade equivalent increment in tested basic skills is correlated with a 5% increase in lifetime earnings (as well as substantial reductions in dependency, crime and illegitimacy). The hours of instruction needed to produce such gains in CCP Learning Centers cost less than \$250 on average, which is only a fraction of the projected benefits to society as well as to learners.

Yet these learning gains and benefit-cost ratios are quite positive, the words and responses of CCP Learners are even more compelling. The CCP Learner Survey asked several questions comparing CCP to previous and alternative learning opportunities, and by a wide margin, CCP is the preferred treatment:

* Do you like the learning center better than your last regular school?

Much more	53%
Somewhat more	22
About the same	16
Somewhat less	4
Much less	4

* Are you learning faster in the learning center than in your last regular school?

Much faster	41%
A little faster	39
About the same	14
A little slower	5
Much slower	1

The CCP Learning Centers received high ratings and strong endorsement from those who were treated:

* How would you rate your learning center?

Great, I would not change anything.	36%
Good, but I would make a few changes.	44
OK, but could be improved.	16
Not OK. Needs many changes.	3
Very bad. Needs total change.	2

* Would you recommend the learning center to your friends and relatives who need to learn?

I would strongly recommend it	45%
I would suggest they try it out	43
I would not recommend for or against	8
I would warn about some bad points	2
I would strongly advise against it	2

These overall assessments are predictably influenced by several factors:

(1) Those who feel they learn best through group interaction are less positive about CCP. Two-fifths of the 100 learners most positive about the CCP (as judged by the rank order of the average responses to the above four questions, with 1 most positive and 5 least positive) feel they learned best by studying and talking to friends as opposed to working alone or with one-on-one instruction; in contrast, almost two-thirds of the 100 learners least positive about the CCP feel they learn best by group interaction.

(2) Those whose previous learning experiences were negative like CCP more. Among learners most positive about CCP, 34 percent rate themselves as previously good or excellent learners and 37 percent rated themselves as poor; while among the least positive participants, 49 percent rate themselves as previously excellent learners and only 15 percent as poor learners.

(3) Those with longer and more intensive CCP treatment benefit more. Among learners least positive about CCP, 21 percent have participated less than 5 hours a week and the same proportion has been enrolled a few weeks or less; only 13 percent of those most positive about CCP have participated less than 5 hours weekly or have been enrolled only a few weeks.

Nevertheless, even among the fourth of CCP Learner Survey respondents who are least positive, more than three of every five believe they learn faster with CCP, like the learning center better than their previous schools, rate it as "good" or "great," and would recommend it to friends or relatives.

Only time will tell whether the gains in competency and confidence will be self-sustaining or deteriorate, whether they will enhance opportunities or

be blunted by life's realities, or whether they will carry over to others or simply remain fond memories for the lucky participants. While CCP Learners are no better at prognostication than others, their narratives suggest that if hope, commitment, enthusiasm and improved skills count, their futures will certainly be brighter:

I enrolled in the learning center program because I had failed 3 subjects in my school and I needed to bring those grades up. My Mother signed me up. The thing I liked best was that it wasn't like regular school where you have teachers breathing down your neck to go faster. Here, you are able to go at your own pace. I loved working on the computers. They helped me to learn easier and faster. The computers helped make learning fun. I think all schools should be run like this...My last ten years of school, I missed about 120 days of school. Some were from sickness and others were from not liking the teachers and it was not fun... This Fall I am looking forward to the technical school. I plan to use my new skills by proving to everyone that I can learn and that I am smart.

Lynnette Evelyn King
Chatham, Massachusetts

[I enrolled in the learning center] to get back into the swing of things, to learn, to brush up on different subjects, to be around people and to prepare for the work field and to find myself. I studied English, math, a little science and also career knowledge and a little history. I've learned about computers. I learned about different jobs available in the work field. I learned to talk and dress better. Also [I learned] how to perform in a work environment. I've learned to do better with my attitude toward people and how to react in any given situation. I plan to continue school after this program. Radiology is my choice. I came to this program in a slump, down and out. But now, I'm motivated, full of fire and ready to conquer the world if I have to do this to succeed. Thank you very much for helping me to find myself again. It makes me feel good to know that there are people out there in the world who are trying to help others help themselves. That really makes my day. May God be with you all.

Ike Dowsey
Chicago, Illinois

I came to the program in June of this year because I needed my General Equivalency Diploma. I had dropped out of high school in the middle of the 12th grade because of boredom and personal problems. The program was good because as soon as I came in, they kept testing me to see what level I was. In other words, I didn't have to bother with things I already knew. Victoria, Virran and Richie really made me get on the ball and they helped me get through in 3 weeks. Now I have my GED and still have a thirst for learning. They talked to me about choices that [I] could make regarding my future. Now I am enrolled in the Word-Processing class which begins in 2 weeks at the Opportunities Industrialization Center and I plan to go to college also. I highly recommend the CCP program to young adults who want to learn what they've missed in school.

Tanya Estrella
Providence, Rhode Island

The Comprehensive Competencies Program has been a dynamic challenge and experience for me. The program was first introduced to me in an advertisement in the daily newspaper on a nursing certified assistant program. This has been an ideal of mine for many years, and could not be realized because of rearing a family. And now with everyone in school I thought at last it could be a reality.

The CCP program certainly gave me confidence. I feel I have grown and can go on growing to further studies. I enjoy using my skills in a nursing home. Many of the patients are so helpful [even though] some may not see you, hear you and can't even talk to you. But the reward is not them giving to you, but you reaching them, teaching them and knowing you were there.

I am grateful for the CCP program because it doesn't really end. Somehow, your last day you don't walk away. You bring the challenge with you and wherever you are, you are a better individual and never at a standstill, for knowledge goes on opening doors, making pathways and reaching goals.

Joan B. Canuel
South Yarmouth, Massachusetts

I enrolled in the learning center program to achieve my high school diploma. I wanted to benefit myself with knowledge and learning. The Bible says, 'Fear of the Lord is the beginning of wisdom.' Well, I already fear the Lord, so now I have decided to work on wisdom.

I liked the entire program. It was comfortable and made it easy for me to feel at ease in a tough situation. I would highly recommend the course for anyone who has never received their high school diploma. Not only would they learn, but they would learn how to learn. This has been an excellent program for me...What I was taught in class I went home and helped my husband. We went to take the GED test together and he passed the test too. So by the way, we both benefitted from the classes I took.

Tex Gwenn Thompson
Bucyrus, Ohio

The reason why I enrolled in this learning center program is because I thought it would help me have an experience or a skill to do something new that I've never done before. The subject I've been studying is English and it really helped me to do better in reading and I learned more new vocabulary...I have been in this country for two years. I think I learn quickly, have a good memory, and I also organize the work pretty well. Anyway, I think the CCP is a terrific program which helped me a lot in self-confidence and improvement in learning something. I really appreciate that. After finishing these assignments, I think I will be able to apply for a 'during-school' job and I'll be able to use my new skills, which I've learned from CCP. Well, I think that's all I can tell you in this essay. I hope you understand what you've been reading because my English is not too good. Please forgive me if there is anything wrong. One more thing I want to say is that my younger sister would love to come to CCP next summer and I'll be back. Thank you very much for what you have done. One more time, I really appreciate it.

Minh Huynh
Champaign, Illinois

I was referred to OIC through the Central Latino...My goal is to apply and be accepted at the skill training center on Laketon in Muskegon, Michigan. After taking my preliminary tests at skill training orientation, which I failed, I was referred to this learning center, it was Mrs. Burt [who] was to help me bring up my score. Her skill as a qualified teacher has earned her respect in the community. I found her efficient style helpful in disciplining my untrained mind.

This program, I understand, is supported through the Ford Foundation and partially through monies allocated through the US Government. With so much money being cut from educational training programs and shifted to defense it is nice to see help from the private sector. I feel that these programs are a step in the right direction in putting America to work. It continues a long tradition stemming from the days of Thomas Jefferson pushing diffusion of knowledge through public schools, from the likes of a country hick named Abe Lincoln who walked miles to borrow books to read. Education is almost free. These facilities help to bring a marked improvement fast. I was [able] to pass my test for admission into training. I am now waiting to be transferred there. The Comprehensive Competencies Program was a good basic review of usable, practical knowledge. The learning center has made it possible to go through training that will open opportunity for travel, money and prosperity that will compound through generations.

+
Elias Farias
Muskegon, Michigan

I was laid off my job because of imports. It was then that I learned about Comprehensive Competencies Program. This program was a good opportunity to further my education. To me, CCP was even better than high school. In CCP you can work and learn at your own pace with nobody pressing you. In high school, if you fall behind, that's where you stay. After CCP I feel I can learn more easily now. There's nothing I would change in the program. It's great just the way it is. I'd like to get into bookkeeping and I think the program will be of great help. I think this is a great learning opportunity for both friends and relatives. I went through the program with my best friend and now my Mom is going for her GED.

Rhonda Storrman
Old Towne, Maine

My name is Steven Pastucha and I enrolled in the learning center so I could get a better understanding of basic math, which was one of the smartest things I've done in my life. Up until now I've been fooling myself. I would think that I was smart, but I have not been able to get a better job than cutting paper for three years...I guess it does not take a lot of brains.

Anyway, I'm very happy with [my] 10.7 [grade level] score for my final test. As for the teaching I received, I do believe it is the best I have ever received. I don't recall picking up or learning anything as quickly as I did at OIC and believe me I've been to a lot of schools... I hope that I can retain what I've learned for years to come.

Machine shop is my goal, and maybe later in life, a tool and die maker. Eight and a half years ago I went to a trade school... I was told by some teachers that I was not smart enough to go into machine shop, so they fixed it so that [I] had to take printing. So I completed that school. I got a job in a small town, Allegon, Michigan. I would drive from Muskegon every morning. And one morning I started thinking about what those teachers did and I knew then I did it to myself. I do not like this type of work. I know now that to be successful I have to enjoy my job in order to grow with it. I have a brother and good friend who work in a machine shop. They have done well for themselves. My father would build houses. He was a carpenter. He loved building them. He loved building and making and creating things with his hands. I also love this, too. My friend would tell how good he feels when after the part he machined is done and is perfect. This would work on a person's pride and the person would grow. After I finish the training for machine shop, I believe I'll have a good feeling of confidence growing and I believe there will be things to learn every day in the future.

Steven J. Pastucha
Muskegon, Michigan

In regards to my feelings about CCP, it is the best commitment I have ever made in my life. I am forty-seven years old, and I thought my life was over. I was recommended to CCP by my social worker. I was working at the fish house before I got here. After the place closed down, I did not want to go back to the same job at minimum wage. It's a hard tough job and very cold in winter time.

When I got to CCP I was encouraged by the counselor. He told me that I did have the ability to learn. He told me a story about a woman of seventy-five years old [who] went to college and got a degree. That made me feel good. I thought if she can, why can't I? My counselor introduced me to Sally and Scott, the instructors. Sally told me how I could learn at my own speed and level. I thought that was great! I did not have to compete with anyone. It also made me feel good and want to be more responsible for my own learning. The books and material are excellent. It really explains in detail the lesson you have to learn. I love working with the computers also.

I really can't say enough for CCP. It gave me a lot of hope and courage to go on to better things in life. The fellowship you find here is beautiful also. I just feel like good things will happen in my life as I continue on with my education. Thank you CCP.

Antoinette Biggers
New Bedford, Massachusetts

The positive experiences of these varied learners offer hope to the millions of Americans suffering from basic skills deficiencies. These responses to the CCP Learner Survey and selections from the 700 CCP Learner Narratives contained in The Comprehensive Competence Program: Compendium of Learner Perspectives, testify that students and dropouts, displaced workers and homemakers, recent immigrants, welfare recipients, offenders, job training participants and underemployed workers throughout the country, have been able to alleviate, and in many cases apparently overcome, this handicap.

Improved basic skills are not a panacea for all personal and social ills, and even the best of remediations cannot completely cure the most chronic skills deficits. The CCP approach is only one of many possible and needed treatments, and like any medicine, it must be properly applied in multiple doses over an adequate period of time to have its full impact. The testimonials of those who have been helped is no substitute for scientific validation of effectiveness.

But the converse is also true. If a treatment consists of prescriptions which themselves have all been determined to be effective, if the overwhelming majority of those who are treated feel better and their condition measurably improves, then there is justification for expanded prescription and hope for an eventual antidote.

By applying research prescriptions, the CCP and CCP Learning Centers have achieved very promising results in treating basic skills deficiencies. While further evaluations are needed, expanded application of the CCP and its generic elements seems warranted in order to reach and serve the millions of Americans who suffer daily from this malady. If the approach proves equally effective in expanded use, it may be possible to eliminate, not just remediate, this malady, so that all Americans will have the competencies they need to function effectively on the job, at home, in school and in the community.



COMPREHENSIVE COMPETENCIES PROGRAM

The Comprehensive Competencies Program: Questions and Answers

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QUESTIONS AND ANSWERS ABOUT
THE COMPREHENSIVE COMPETENCIES PROGRAM

Robert Taggart

March 1984

WHAT IS THE CCP?

The Comprehensive Competencies Program (CCP) is a system for organizing, implementing, managing and efficiently delivering individualized, self-paced instruction, combined with group and experience-based learning activities, using computer-assisted instruction (if desired). The CCP covers not only academic objectives spanning the beginning to the post-secondary level, but also a comprehensive array of functional objectives considered vital for adult performance in society, the home and the marketplace.

The CCP includes the following elements:

1. structured hierarchies of academic and functional competency objectives (see The Comprehensive Competencies Program: Academic Component Level and Unit Objectives Matrices and The Comprehensive Competencies Program: Functional Component Level and Unit Objectives Matrices);
2. over a thousand tests measuring mastery of these objectives (see Assessing Competencies and Measuring Mastery: The Use of Tests in the CCP);
3. lesson assignments addressing each objective, referencing print, audiovisual and CAI materials selected through a comprehensive screening of most commercial and public domain materials (see The CCP: Structure, Format and Use);
4. inventories of print, audiovisual and CAI materials for use in functional and academic instruction (see CCP Instructional Materials);
5. descriptions and formats for supplementary group and experience-based learning activities (see Supplementary Activities in the CCP);
6. a recordkeeping system which minimizes paperwork, provides detailed tracking and benchmarking of competency attainment, and permits easy evaluation of instructional effectiveness (see The CCP Information System);
7. software for automating test scoring, recordkeeping and reporting (see The Class-Level CCP Computerized Information System);
8. technical assistance manuals (see CCP Users Guide);
9. future updates of lesson assignments and tests based on operating experience and continuing materials screening; and,

10. future variants and adaptations for special applications such as working with an ESL population.

The CCP is completely modular, so that any subset of competencies, mastery tests, materials, or supplementary activities, can stand alone. There is flexibility for adding or modifying objectives, tests, materials and activities. The system can operate with or without computers, and can incorporate a range of hardware and software, permitting incremental adoption and use of varying mixes of hardware and software.

The CCP is intended as a framework for continuing development. Users are networked to cumulate and disseminate their experiences (see the CCP Use Agreement.) Screening of new materials, and development of instructional variants, is a continuing process. The automated recordkeeping system of the CCP builds in norm-referenced academic and functional competency tests, tracks hours of related instruction, collects and analyzes the completion time and rate for every unit, as well as the scores for every mastery test and every mastery test item, for every participant (see The CCP Computerized Analysis System.) This data base for diverse CCP users is analyzed periodically to establish performance norms and predictors, to refine mastery tests and assignments, and to document overall and specific user performance.

HOW CAN IT BE USED?

The CCP can be, and is being, used in activities funded under the Jobs Training Partnership Act (JTPA), in adult basic education, in vocational rehabilitation and vocational education activities, in correctional programs, and in both secondary and post-secondary remedial and employability development programs. The CCP can be implemented by almost any institution delivering or wanting to deliver education, life skills training or employability development for almost any adult or young adult population. Using different portions of the system, existing CCP users are serving a wide array of groups including: 1) learning-disabled youth and adults; 2) college-bound youth and college students; 3) displaced workers; 4) offenders; 5) secondary students; 6) solo parents; and 7) dropouts. The CCP has been adopted by isolated delivery agents, by local, state and national networks of delivery agents, as well as on a statewide and city-wide basis under JTPA. At the end of 1983, 35 CCP-based centers were operating or in the implementation phase nationwide. Approximately 100 CCP-based learning centers are scheduled for implementation during 1984.

The CCP was developed with private foundation support. Its 20 volumes of objectives, lesson assignments, tests, and supplementary activities, its handbooks and background materials, and its software for the computerized information systems, are pro-

vided at reproduction cost (approximately \$500). Copies of public domain computer-assisted instruction lessons are also provided at reproduction cost (\$5.00 for each diskette). Referenced commercial print, audiovisual, and CAI materials are purchased by the user from options on the materials list.

To establish a learning center delivering the complete range of CCP instruction, with capacity for 36 learners and with one microcomputer for every four learners, costs approximately \$35,000 for all instructional equipment and courseware. Amortizing capital costs over three years, and operating on a fully-scheduled basis with a teacher and an aide, total costs are between \$1.50-\$2.00 per instructional hour. Costs are proportionately less if only a portion of the CCP is used, if CAI is excluded, or if materials or equipment are already available. Costs are proportionately more with increased computerization or if more elaborate computer systems are utilized.

It usually requires four to six weeks to acquire and set up materials and equipment for a comprehensive learning center, two weeks of training before opening, and an operational learning curve of up to four weeks. Two weeks or more of outside technical assistance is needed.

The CCP may be used only by nonprofit agencies and educational institutions signing a CCP Use Agreement. This agreement requires a reasonable implementation schedule and technical assistance plan. All users are networked, sharing data, experiences and new or locally-developed materials. Practitioner-to-practitioner technical assistance is emphasized.

WHY WAS IT DEVELOPED?

The CCP was developed as a replication mechanism for approaches and systems of already demonstrated effectiveness, as a means to integrate experiences of diverse users in order to further improve these systems and approaches, and as a tool for eliminating waste and duplication in remediation programs. Though much has been invested in determining what works best, the packaging and dissemination of these models has been neglected. Continuing refinement and development is needed but there is no framework to integrate local experiences. All too often, it is necessary to reinvent the wheel in each local context, leading to much waste and duplication. The CCP aims to reduce such problems, building on what is known to work in order to review the effectiveness of remediation activities.

Element 1. Individualized, self-paced academic instruction, specifically the variant developed and delivered in Job Corps over nearly twenty years, has proven effective but has not been widely adopted. The primary impediment to widen use is the absence of a comprehensive framework to unify the varied

components and reference them to recognized standards. For instance, the Job Corps system was designed for large centers with separate classes for beginning readers, intermediate readers, GED students and mathematics students. For each of these components, the instruction is individualized and self-paced, but the nomenclature, test-structure and tracking systems differ, and bear little relationship to the procedures and norms outside of Job Corps. The typical remedial program in local settings may have 25 or fewer participants, of widely-varying competencies, so that separate classrooms for each are not feasible. These programs are judged by nationally-normed tests, not the internal measures adopted by Job Corps. To increase transferrability of the proven Job Corps system, the CCP, therefore, reorganized and renamed the elements, achieving uniformity and integrating accepted, normed tests. Similarly, Job Corps serves an extremely disadvantaged population, so it has not focused on instruction beyond the GED level. Elsewhere, a primary goal of remedial programs is to help more adult participants prepare for post-secondary education and training. Therefore, the CCP added a "college prep" segment structuring individualized, self-paced instruction to cover more advanced academic objectives, using a uniform nomenclature and approach so that the most advanced learners could be served in the same classroom as slower learners.

Element 2. Functional instruction emphasizes on the applied skills necessary for success in the world-of-work, in the home and in our complex society, teaching academic skills as a means to a practical end. Research has shown that functionally-oriented instruction can increase academic as well as functional skills. However, there are several problems in implementing functional programs. First, the materials and curricula are more difficult to organize because there are no grade-level norms or standard scope and sequences for functional instruction. Because reading and mathematics skills are primary factors in functional competence, functional instruction must be structured so that a range of materials are available appropriate for varying academic levels. Second, though remedial populations on average may prefer practical instruction, many want traditional academic instruction and recognized academic credentials. Third, it is difficult to secure agreement about which competencies are most important, or about how to measure mastery.

The CCP seeks to overcome these problems by structuring a functional component paralleling the academic component, referencing different sets of materials that are appropriate for the needs and abilities of individuals at the basic, intermediate or advanced academic levels. The array of functional objectives is inclusive, and since the CCP is completely modular down to specific units, it is possible to select from the menu any specific combination of functional competencies considered most appropriate. It is also possible to offer any desired mix of functional and academic instruction. Finally, the CCP provides

short tests for specific competencies, and more general tests for groupings of competencies, to provide uniform standards for assessing proficiency.

Element 3. Individualized, self-paced instruction, whether academic or functional in content, works to the extent that it increases "time-on-task." But efficient learning can be monotonous. The CCP references print, audiovisual, and computer-delivered options for its lesson assignments in order to provide diversity. But to break the routine of individualized, self-paced instruction, and to help those who learn best by doing or in group activities, the CCP includes an array of structured supplementary activities for individual homework assignments, for experience-based learning, and for group interaction. These supplementary activities were screened from the curricula of the most effective functional, academic and experienced-based learning programs, and are focused on specific lesson objectives. The formats are streamlined so that the instructor can easily use these supplements in combination with individualized, self-paced instruction, and without a great deal of extra planning and organization.

Element 4. Research has documented the learning gains resulting from the use of CAI to supplement other instruction, but computer use too often flounders on operational issues. Operators of remedial programs lacking computer expertise have difficulty in choosing between the hardware and software options. They cannot afford to screen the massive array of CAI which is now available. Once software is secured, it is difficult to determine when any particular CAI lesson should be assigned to any particular student. This is complicated when a variety of software is needed to cover a range of learning objectives. The result is that computers are frequently underutilized or dedicated to limited uses such as computer literacy when they could be providing significant basic skills instruction. The CCP objectives hierarchies provide a framework for referencing CAI. Thousands of lessons, available for a range of micro- and mini-computers, have been (and are continuously) screened, easing the burden for users. The accepted CAI lessons are referenced to specific learning objectives as options to core print or audiovisual materials. The CCP lessons, tests and tracking systems provide the means for determining when each available CAI lesson is appropriate for each learner. Because the CCP can operate with no computers, or with different intensities and mixes of computers, it facilitates incremental incorporation as resources and expertise permit. The CPC uses microcomputers like projectors or record-players, simply identifying the off-the-shelf instructional software useable with little or no computer expertise.

By integrating these four elements of proven effectiveness into a unified, comprehensive and workable system, the CCP transmits to users the benefits of previous investments in materials review and development and curricula experimentation. By referencing a vast array of print, audiovisual, and CAI

materials to specific objectives, it reduces the cost to users of locating, screening, field-testing and organizing the diverse materials of high quality which already exist. Yet by providing a comprehensive menu of objectives which can be delivered in any combination, and by referencing alternative materials for most objectives, it achieves economies of scale without substantially reducing flexibility. Because there is a consistent competency measurement and reporting system, and all users share data and experiences, the CCP can be improved over time based on its effectiveness in varied settings. In other words, it can reduce the need to reinvent the wheel in each context while still permitting adaptation to local conditions; it can replicate what is already proven to work while providing a foundation for further improvements.

HOW EFFECTIVE ARE ITS COMPONENTS?

There is extensive evidence that the four elements integrated and systematized by the CCP are instructionally effective--indeed, the key and common factors in remedial programs that have worked on any significant scale:

1. Individualized, Self-Paced Instruction. Programmed learning approaches which let each learner progress as rapidly as possible through "bite-sized chunks" of instruction appropriate to individual skills and abilities, combined with frequent checks of mastery and immediate feedback where problems occur, generally achieve learning gain rates which exceed those in traditional classroom instruction.

o A quantitative synthesis of 51 separate studies comparing individualized and traditional mathematics instruction in elementary and secondary schools found that the individualized systems raised student performance a sixth of a standard deviation on average, or from the 50th to 57th percentile on standardized achievement examinations.¹

o Another summary of 49 studies comparing individualized systems of reading and math instruction in secondary schools found that students in programmed learning gained a tenth of a standard deviation on average, relative to students in traditional education, or the difference between the 50th and 54th percentile on nationally-normed tests.²

o A summary of 61 studies comparing individualized with regular college-level classroom instruction found an average achievement differential of half a standard deviation in final examination scores in favor of programmed learning.³

Working with the most disadvantaged youth and young adults, the Job Corps remedial education system, has yielded educational gains far exceeding their previous education achievement rates,

frequently exceeding nationwide school norms and well above the learning rates averaged by students in adult basic education.

o Corpsmembers in a stratified sample of centers in 1966 averaged reading gains of 1.0 grades per month, equating with half a grade per 100 instruction hours. The mathematics gains were .15 grades per month, or three-quarters of a grade in 100 instructional hours. The typical Job Corps completer remained nine months, improving averaged mathematics and reading grade levels by 1.6 school-year equivalents.⁴

o Corpsmembers in a stratified sample of centers in 1967 gained a weighted average of .33 grade gains in reading and .44 grades in mathematics over their five month's average stay, equating with .41 grades per 100 hours of instruction in reading and .55 grades for every 100 hours of instruction in mathematics.⁵ The monthly gain rate in reading was a fifth below school norms, while the arithmetic gain rate was a tenth above. Alternatively, their reading gain rate was half again, and the math gains nearly double those realized by Corpsmembers during their previous school years (as judged by entry achievement vs. grades attended).

o In tests of all Corpsmembers in fiscal 1968, reading gains averaged .13 grades per month of participation, and mathematics gains averaged .17 grades per month, equating with in math, slightly exceeding school norms for reaching achievement and two-fifths higher than nationwide arithmetic achievement norms, or double and triple, respectively, the previous school achievement rates of Corpsmembers.⁶

o Corpsmembers in six urban centers in 1969 were tested within 30 days of arrival on center and during the final 60 days of their stay, which averaged 4.8 months. The mean reading gain was .69 grade levels and the arithmetic gain was .70 grade levels, representing .92 reading grades and .93 mathematics grades per 100 related instructional hours.⁷

o From 1971 through 1974 Corpsmembers averaged .18 grade gains in reading per month, and .20 grade gains in mathematics, equating with 1.13 grades in reading and 1.25 grades in mathematics per 100 hours of instruction in subject.⁸ These gains were half again school norms in arithmetic and two-thirds above school norms in mathematics, or approximately triple the monthly learning rates achieved by Corpsmembers during their preceding years of school attendance. The effectiveness of educational programs improved, with reading comprehension gains per month increasing from .13 to .21 grades between 1971 and 1974, while arithmetic gains per month improved from .13 to .25 grades.

o The Job Corps educational system was utilized half day in Neighborhood Youth Corps projects for dropout youth in a series of experiments from 1971 through 1975.⁹ Participants gained .8 grades in reading over three months of participation,

and 1.0 grades in math, or 1.0 and 1.2 grades, respectively for each 100 related instructional hours. In two detention facilities for young adults, reading gains averaged 1.0 grades for 100 hours of reading instruction.¹⁰

o In Air Force use of the Job Corps reading program for Project 100,000 entrants in 1968 and 1969, reading improved from the 4.7 to 6.1 grade level in 173 hours of instruction, representing a mean gain of .8 grades per 100 instructional hours.¹¹ As a result of the concentrated (four hours per day) nature of the program, the monthly gain rate averaged over three times the school norm--and over six times the previous achievement rate of the trainees.

o Corpsmembers in a stratified sample of centers in 1980 and 1981 gained an average of 1.16 grades in reading per 100 instructional hours, and 1.64 grades in mathematics. Typically, 100 instructional hours in each subject was achieved in a little less than five months, so that the gain rates were 2.3 times school norms in reading and 3.3 times school norms in mathematics.¹²

2. Functional Instruction. The CCP functional component is structured to address the competencies determined necessary for adult success by the Adult Performance Level project funded in the early 1970's by the Office of Education. The CCP uses the APL Survey and APL Content Area Measures--tests developed by the project to measure mastery of adult competencies. The CCP references commercial and public domain materials developed to address APL competencies, including those developed by the APL project itself. To address gaps in the APL competency menu, however, some objectives and related instructional materials were added. Furthermore, along with more detailed mastery tests of specific competencies, APL tests are related directly to instruction, and some of the problems noted in critiques of APL tests as self-standing assessment instruments have been mitigated.¹³

Evidence from a range of APL experiments suggests that the substitution of functionally-oriented, competency-based instruction for a more academically-oriented approach increases student interest and retention, yielding functional competency gains without significant sacrifice in academic gains, although somewhat increasing the time necessary to improve tested academic skills:

o In a 1976 experiment in Louisiana, 135 participants in APL-based GED instruction in six sites were compared with 91 participants in more traditional academically-oriented instruction in six control sites.¹⁴ The dropout rate was 29 percent for the APL group compared to 37 percent for the control group. The APL group gained an average of 2.4 academic grades (as measured by the California Achievement Test) compared to a gain of 1.4 grades for the control group. This differential was in part due to the greater retention and intensity of the APL

instruction; participants averaged 196 hours compared to 147 hours for controls. Still, the academic gain rate per 100 instructional hours was 1.2 grades in APL classes vs. .9 grades in traditional classes. The average raw score on the 40-item APL Survey increased by 4.3 points for controls, but 6.0 points for experimentals.

o Another experiment in Louisiana in 1977 tracked 399 participants in APL-based GED instructional programs in four sites, and 191 participants in academically-oriented GED programs in four control sites.¹⁵ The dropout rate among those in APL-based instruction was 8 percent compared to 22 percent in traditional education, and the subsequent GED pass rates were 75 and 59 percent, respectively.

o In a multi-year evaluation in four Missouri correctional institutions, the academic gains from APL-based instruction were roughly equivalent to those from traditional academic instruction--.6 grades in reading, .6 in mathematics, and .6 in language arts for each 100 hours of combined instruction.¹⁶

o A study in Abeline, Texas, compared 147 enrollees in an APL-based GED class with a control group of 22 students in a regular GED program.¹⁷ The retention and graduation rates were superior for the APL program: respectively, 92 percent vs. 75 percent, and 87 percent vs. 73 percent. On the other hand, it took four months (150 hours) for the APL students to complete, compared to three months (85 hours) for the regular GED program participants.

o In a 1979-1980 experiment in the El Paso Job Corps Center comparing 79 experimentals in an APL-based GED program with 54 controls in a regular GED program, the statistically-adjusted reading gain rate per instructional hour was an eighth higher for experimentals than for controls, though the mathematics gain rate was an eighth lower.¹⁸ Over a two-year period, 95 percent of the Corpsmembers who had entered the APL component and had subsequently terminated from Job Corps were able to achieve a high school diploma; the average education program participation time was six months. Among the Corpsmembers who entered the regular GED program and subsequently terminated from Job Corps, the GED completion rate was less than 70 percent, but the average classroom time was only four months.

3. Group and Experienced-Based Learning Activities. To supplement individualized, self-paced instruction, the CCP uses group and experience-based learning activities screened from the curricula of academic and functional programs determined successful by the extensive research under the Youth Employment and Demonstration Projects Act of 1977--primarily Jobs for America's Graduates, the Vocational Exploration Demonstration, the Youth Career Development Demonstration, and the Career Intern Program. The previous effectiveness of the selected curricula elements does not guarantee their success in the CCP, but

certainly justifies, their inclusion:

o The Career Intern Program, using individualized, self-paced learning supplemented by experience-based learning activities, was a CCP prototype. Many CIP modules were included as supplementary activities based on positive evaluation findings. In the original CIP project, operating from 1972-1974, interns gained five (SAT-tested) academic months in reading and four academic months in math over the year from selection to follow-up while the randomly-selected control group scores did not change.¹⁹ Mathematic problem-solving skills improved significantly for participants but not controls. Only a third of the Interns dropped out of school as compared with 85 percent of the control students, and there were significant differences in attendance during periods of enrollment. Vocational maturity increased more for participants than controls. At follow-up six months after the program, CIP participants were more likely to be in school, slightly more likely to be employed, and significantly less likely to be out-of-school and out-of-work.

o The CIP approach proved equally effective in a four-site replication by the Department of Labor, assessed from 1978-1981 by the National Institute of Education. Tested nine months after entry, participants advanced from the 24th to the 35th percentile of national reading levels.²⁰ Comparison groups drawn from regular and alternative schools gained less than CIP participants but the differences were not statistically significant. CIP participants moved from the 12th to the 17th percentile in mathematics; the gains were smaller, but the differences statistically significant, relative to controls and comparisons. At the one-year follow-up, 57 percent of CIP participants had graduated from high school, were currently enrolled or had earned GED's, compared to just 47 percent of the control group and just 41 percent for a group applying for but not participating in CIP. A follow-up 20 months after enrollment found 41 percent of controls and 45 percent of no-shows, but only 33 percent of participants, out-of-school and out-of-work.

o The YEDPA-funded Youth Career Development program provided many of the CCP individual, group and experience-based learning activities. As documented by pre-/post-tests of experimentals and controls, YCD projects had positive and statistically significant impacts on vocational attitudes, job-holding skills, work-related attitudes, job-seeking skills, and sex-role attitudes; they had positive but not statistically significant effects on job knowledge.²¹ YCD reduced the likelihood of not working or not being in school by 5 per 100 relative to controls three months and eight months after the end of the school year. Assessed by the same procedures, the Jobs for America's Graduates model yielded 15 per 100 employment increases at the three-month follow-up, and 7 per 100 at the eight-month follow-up.²² JAG had greater and statistically significant effects on job-seeking and job-holding skills. Finally, the Vocational Exploration Demonstration Project also produced significant gains in job knowledge, job-holding skills,

work relevant attitudes, job-seeking skills and self-esteem while reducing sex-stereotyping.²³

4. Computer Use. The effectiveness of computer-assisted instruction as an instructional supplement has been summarized in four recent meta-analyses standardizing the impact measures, statistical criteria and techniques of other studies. Job Corps experiments have validated the applicability of these findings for the economically disadvantaged:

o A 1977 meta-analysis of studies of CAI use in elementary and secondary mathematics concluded that computer-based programs raised student achievement by two-fifths of a standard deviation (or from the 50th to 60th percentile of national norms).²⁴ A 1981 summary found an overall effect of nearly half a standard deviation gain for CAI math tutorial programs, and a third of a standard deviation for computer drill and practice programs.²⁵

o A 1983 meta-analysis of 48 studies comparing computer-based with traditional instruction for secondary students found that in 39 cases, students from the computer groups scored higher on final examinations and/or final achievement tests; in the other nine cases, the reverse was true. In 23 of the 25 studies with statistically significant differences, the computer-based instruction was superior. The mean differential was a third of a standard deviation. Significantly, the differential effects were an eighth of a standard deviation where the instruction focused on high ability students, but nearly half a standard deviation for students of below-average ability.²⁶

o A 1980 meta-analysis summarizing 54 studies of college CAI use found that in 37 studies, the students in the CAI courses realized greater achievement; in 17 studies, conventional instruction proved more effective.²⁷ In 13 of the 14 studies where the differentials were statistically significant, the CAI was more effective, increasing achievement by a fourth of a standard deviation.

o Random-assignment experiments in Job Corps documented very significant learning increments from CAI. Computer lessons were referenced as alternatives to print and audiovisual lesson assignments, with students on terminal between 15 and 35 percent of class time. For students using on-line PLATO only along with regular lessons (with a third of time on terminal), the per hour ANCOVA-adjusted gain rates in reading were increased by three-eighths, and the gain rates in mathematics were increased by five-sixths.²⁸ In a mixed model using microcomputers, minicomputer drill and practice and on-line PLATO (with 25 percent of time on terminal), the ANCOVA-adjusted reading gain rates per hour for experimentals were two-thirds above those of controls, while the mathematics gain rates were roughly equivalent in one experiment but five-ninths higher in another.²⁹ Experimentals using microcomputer PLATO (with 25 percent of time on terminal and the remainder in regular instruction) averaged reading and

mathematics gains substantially above those of controls in regular instruction, but the sample sizes in this experiment were too small to yield statistical significance.³⁰

o Computers also boosted Job Corps educational effectiveness by reducing the most time consuming dimension of individualized, self-paced instruction--test scoring. A careful time-use study in one center implementing automated test-scoring found that for the average teacher with a hundred students weekly who graded 65 tests each week, the time required was reduced from 2.7 hours to less than one hour per week.³¹

Students spend time checking many of the unit tests as well as waiting for teachers to check their tests. In another center with automated scoring, the time students spent checking tests or waiting for tests results declined from 17.5 to 1.9 percent of mathematics class time, and from 16.1 to 8.0 percent of reading class time.³²

WILL THE CCP WORK?

The CCP has been operational in four sites for less than one year, so the net gain score evidence from its integration of Job Corps academics, CAI, APL and experience-based learning activities, is limited to start-up cohorts with small sample sizes. But the results are extremely positive:

o In the Baltimore National Urban League IBM Word Processing Center, which provides mathematics and language arts training to a screened clientele entering with higher achievement levels (an average 10.9 English mechanics grade level at entry), and which uses the CCP without computer-assisted instruction, the first cohort of participants (n=23) gained 1.5 grades in English composition in 100 language arts instructional hours, and the mathematics gains were 5.2 grades in 100 instructional hours.³⁴

o In the Milwaukee OIC, the CCP-based learning center has intensive computerization, with five Apples, four micro-PLATO and eight Computer Curriculum Corporation on-line terminals for a learning center with capacity of 50.³³ Operating three hours daily with each class of students, one-third of time is spent on functional instruction (primarily employability skills and consumer economics), with two-thirds time spent on academic subjects (for the first cohort, 36 percent in mathematics, 39 percent in reading, and 25 percent in language arts). There is one teacher for every 15 students--an above-average ratio for CCP-based learning centers.

For the first cohort of 77 adult learners (who had tested achievement at entry of 7.5 grades in reading, 8.1 in language arts and 7.4 in mathematics, after an average of more than 12 years of school attendance), the gains in CCP instruction were as

follows:

Composite grade gain/100 academic instruction hours (not including 33 functional instruction hours)	1.3 grades
Composite grade gain/100 academic and functional instruction hours	.9 grades
Reading grade gain/100 reading hours	3.0 grades
Mathematics grade gain/100 mathematics hours	3.9 grades
Language grade gain/100 language arts hours	5.4 grades

Since the goal of adult basic education programs is one grade level gain in a subject for each 100 related instructional hours, the achievement of learners in the Milwaukee center are quite significant. A more appropriate comparison, however, is with the results of the academically-oriented classroom instruction system which preceded the CCP in Milwaukee, using the same teachers and serving the same target populations. This program operated five hours daily with each group of students, averaging 30 percent of time in reading, 40 percent in mathematics, 30 percent in language and with no hours of functional instruction. This program far exceeded national performance norms, but the composite academic grade gain per class hour was a third higher in the CCP (even during the start-up phase)

	CCP Learners (n=77)	Control Group Learners (n=99)	CCP Learning Rate Divided by Control Group Learning Rate
Composite grade gain per 100 total scheduled instru- tional hours (including functional instruction hours for CCP)	.89	.68	131%
Reading grade gain per 100 total scheduled instructional hours (including functional in- struction hours for CCP)	.78	.47	166%
Mathematics grade gain per 100 total scheduled instructional hours (including functional in- struction hours for CCP)	.92	.62	148%
Language grade gain per 100 total scheduled instructional hours (including functional in- struction hour for CCP)	.89	.90	99%

	CCP Learners (n=77)	Control Group Learners (n=99)	CCP Learning Rate Divided by Control Group Learning Rate
Composite grade gain per 100 scheduled academic instruc- tional hours	1.33	.68	196%
Reading grade gain per 100 scheduled academic in- structional hours	1.16	.47	247%
Mathematics grade gain per 100 scheduled academic in- structional hours	1.38	.62	223%
Language grade gain per 100 scheduled academic in- structional hours	1.34	.90	149%
Reading grade gain per 100 estimated reading in- structional hours	2.97	1.57	189%
Mathematics grade gain per 100 estimated mathematics instructional hours	3.83	1.55	247%
Language grade gain per 100 estimated language arts in- structional hours	5.36	3.00	179%

Two significant segments in the universe of need for remedial education are solo parents and minority dropouts. Both the CCP and control groups contained large enough samples of these subgroups to assess their absolute and relative learning gains under regular classroom instruction vs. the individualized CCP approach.

	CCP Learners	Control Group Learners	CCP Learning Rate Divided by Control Group
Composite gain rate per 100 scheduled in- structional hours			
Minority Dropouts	(n=48) .75	(n=42) .63	119
Minority High School Graduates, GED and Post- Secondary	(n=27) 1.16	(n=50) .73	159
Composite gain rate per 100 scheduled academic instructional hours			
Minority Dropouts	(n=48) 1.12	(n=42) .63	178
Minority High School Graduates, GED and Post- Secondary	(n=27) 1.74	(n=27) .73	238

These data suggest that for both dropouts and graduates, the CCP is substantially more effective than the regular classroom approach, but the relative benefits are greatest for graduates, perhaps because they are more adept at self-directed learning or gain more from computer use. The differential was totally in the mathematics domain. Dropouts in CCP instruction gained more rapidly in mathematics than those in regular instruction--2.83 grades per 100 mathematics instructional hours vs. 1.68 for dropouts in regular mathematics instruction; but CCP graduates gained 3.8 grades per 100 estimated mathematics instructional hours vs. only 1.53 for those in regular mathematics.

Solo parents achieved above average gains in both regular and individualized instruction. In the control mode, their

composite grade gain per 100 total instructional hours was .78 grades (n=39), 15 percent above the average for all participants or 28 percent above all other participants. In CCP, solo parents gained .94 grades (n=37), 6 percent above the average for all participants or 11 percent above all other participants.

The CCP tracks hours in lessons. Due to absenteeism and to down-time in the classroom, the time in instructional activity is less than scheduled class hours. For the CCP groups overall, average instructional hours between pre- and post-test were 90 percent of scheduled class hours. Thus, the gain rates per actual instructional hour were 11 percent greater. It is important to stress, however, that this would also be true for the control model--perhaps even more so because of possible greater down-time in the group classroom.

o The automation of test scoring and recordkeeping in CCP-based classrooms dramatically increases their instructional and managerial efficiency. The instructional results alone were achieved prior to implementation of the CCP Computerized Information System. The time savings from its use have been estimated by simulations of specific tasks performed by instructors and class-level personnel. Assuming two classes of twenty-five being served daily for four hours each class, the time savings are as follows:

Task	Estimated Weekly Incidence	Simulated Task Time Without Automation (Minutes)*	Simulated Task Time With Automation (Minutes)*	Simulated Task Time Saving with Automation (Minutes)*	Weekly Teacher/Administrator Time Savings (Minutes)	Weekly Student Down-Time Reduction (Minutes)
Test scoring and subscoring for diagnosis						
Tier Tests	1/8 per participant	15	3	12	75	75
Subject Strand Test	1/4 per participant	8	2	6	75	75
Level Tests	1 per participant	6	1	5	150	150
Unit Tests	3 per participant	2	1	1	250	250
Assessment of individual progress using multiple test results and patterns when problems occur						
	1 per participant	5	1	4	200	200
Weekly progress reports and reviews for each student						
	1 per participant	15	0	15	750	--
Class summary of progress and gains						
	1/4 per week (once every four weeks)	480	60	420	105	--

*Test time savings were simulated by 100 scorings manually and with the automated system. Weekly progress and class summary simulations involved ten manual and computer preparations of reports. The simulation of individual progress assessment compared for 25 cases the individual report time on computer with time to access test results from participant file and to organize information.

The total weekly time savings for the instructors, aides and class-level recordkeepers is as much as 26.8 hours. Assuming one instructor, one aide and one half-time clerk, this represents a savings of one-third of total staff hours. Participant down-time waiting for test results and assignments is reduced by as much as 12.5 hours weekly, or 6.3 percent of instructional hours.

These initial findings for CCP use are not, nor are they intended to be, conclusive. Nevertheless, the successful implementation of the system in several different locations suggests that the CCP integrates previously effective instructional elements into a system which is replicable, and that there is no apparent loss in effectiveness (and probably an increase) by the integration of the varied elements. More time and increased replications will provide definitive evidence, but the early returns are highly favorable.

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COMPREHENSIVE COMPETENCIES PROGRAM

The Comprehensive Competencies Program: An Overview

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THE COMPREHENSIVE COMPETENCIES PROGRAM:
AN OVERVIEW

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August 1984

A Tool to Improve Basic Competencies

A number of basic competencies are required to compete and perform in the labor market as well as to meet other adult responsibilities and challenges. These include fundamental academic competencies--the abilities to read, write and compute--as well as functional competencies applying these and other skills to everyday situations such as reading transportation schedules or want ads, filling out job applications, voting, comparative shopping, and the like.

Millions of adults have lacked, or have failed to benefit from, opportunities to develop these competencies. Millions of today's graduates and dropouts leave school without these most rudimentary abilities. Their competency deficits are detrimental to their current and future happiness and welfare. They are costly to employers who struggle to utilize and train an inadequately skilled work force. They reduce America's competitiveness with other nations whose preparatory and remedial systems are more effective. The uneven distribution of competencies is inextricably linked to race and class problems in our society. It is difficult for our economic and social system to adapt to an increasingly complex and changing world when significant segments of the population read, write, compute and function at such low levels.

Many, if not most, of those with limited competencies can be helped. There is substantial evidence that pre-school and follow-through programs, plus early compensatory education, have evened opportunities and accomplishments at the educational starting gate. There is evidence that computer-assisted instruction and alternative education approaches can increase the learning gain rates of secondary students who lag in basic skills. Employability development and life skills training programs for students and school leavers have documented success in easing the transition from school to work. Classroom training components of employment programs, adult-basic education, and military remediation programs, all achieve education gain rates which equal or exceed those realized by the educationally and economically disadvantaged in regular school settings.

Yet there is enormous variance in the quality and effectiveness of these remedial and compensatory education, life skills training, and employment preparation activities in the hundreds of thousands of schools, community-based organizations, vocational institutions, military bases, businesses, and union sites where instruction is offered. Billions of dollars of public and private funds, and millions of hours of learner and staff time, are wasted on instruction which is below average, and far below the quality achieved by the best approaches and delivery agents.

The Comprehensive Competencies Program (CCP) is a mechanism for upgrading basic competencies by improving the average effectiveness of these remedial and preparatory efforts. It is a flexible system for conceptualizing, organizing, implementing, managing, and delivering competency-based instruction under the Jobs Training Partnership Act, adult basic education, vocational rehabilitation and vocational education, military remediation and preparation programs, as well as school-based compensatory and employment preparation programs. The CCP provides for individualized, self-paced instruction, delivered on an open-entry, open-exit basis, covering academic objectives from the beginning level up to those needed for post-secondary education and training, and covering a comprehensive array of functional objectives considered vital for successful adult performance in the world of work, the marketplace and the home. The system is structured so that this range of instruction can be delivered in totality or in parts, as either a core or supplementary component of youth and adult programs. It also includes computer management and instruction options, so that the potential of computer technologies can be harnessed cost-effectively to upgrade basic competencies.

The CCP is eclectic. It encompasses the best of available instructional materials, including written, audiovisual and computer-assisted lessons, drawn from a range of sources. Its organization is based on systems which have been widely accepted. The organizational framework of diagnostic tests, decision rules, suggested lesson assignments, mastery tests and record-keeping forms, is in the public domain. Most of the referenced materials are commercial products, but some are also in the public domain. Where these materials and frameworks have been used, programs and projects have generally achieved above average results in the enhancing academic and functional competencies.

In other words, the Comprehensive Competencies Program integrates those systems and components which have proven to be most effective. It structures them with numerous options for delivery agents and practitioners, so that local expertise can add to an already solid foundation based on successful models. The CCP is designed as a building block which can be used in a wide range of public and private settings, so that program designers can focus on the linkages and adaptations for local conditions rather than "reinventing the wheel" in each delivery context. Likewise, the CCP aims to identify and structure the courseware and equipment needed by teachers so they can concentrate on the vital task of instruction. Finally, the CCP provides a management framework where the clear specification of inputs and achievements will permit administrators to monitor the effectiveness of instructional activities. Better management, better courseware, and better building blocks can help administrators, teachers and program designers to focus more attention on what they do best, so that the average quality of remedial and compensatory education, life skills training and employment preparation activities can be improved.

The Content of the CCP

The Comprehensive Competencies Program has separate components addressing two broad competency domains:

(1) The Academic Competencies Component covers reading and writing skills including comprehension, grammar, vocabulary and usage. It covers mathematics skills including addition, subtraction, multiplication, division, fractions, decimals, metrics, personal math, plus some basic trigonometry, algebra, geometry and calculus. Also included are more advanced high school level offerings in science, social studies, and literature and the arts. These academic competencies parallel the basic skills covered by most primary and secondary school curricula, including advanced skills needed for college entry and frequently covered by remediation programs at the post-secondary level.

(2) The Functional Competencies Component covers the applied problem solving, communication and computational skills considered necessary to function successfully in adult life--i.e., occupation-related competencies such as reading want-ads and completing job applications; consumer-related competencies such as comparative shopping and budgeting; citizenship-related competencies such as voting and understanding contracts; knowledge of community resources such as how to access public transportation; and health-related competencies such as first aid, understanding of nutrition, and knowledge of health dangers including alcohol and drug abuse.

Within these two broad competency domains, the specific competency objectives, and the instructional materials to achieve these objectives, are structured hierarchically based on judgments about the most reasonable learning sequences, the importance of the objectives, as well as conventions accepted in other programs and institutions. There are three tiers in the CCP:

(1) Tier I. Basic in the academic component covers fundamental reading and mathematics objectives and materials roughly equivalent to instruction offered in the first through fourth grades. The objectives and materials in the basic tier functional component cover the most elementary and critically needed employability and coping skills and are appropriate for persons with limited academic skills, emphasizing audiovisual approaches.

(2) Tier II. Intermediate in the academic component covers mathematics, reading and language arts objectives and materials roughly equivalent to the offerings during grades five through eight in most schools. The intermediate tier of the functional component covers employability skills, consumer economics and life skills objectives in more detail than in the basic tier, aiming for a higher degree of proficiency and using print, audio-

visual and computer-assisted instructional materials useable by individuals with intermediate reading and mathematics skills.

(3) Tier III. Advanced in the academic component covers the high school equivalent objectives and materials which are needed to prepare for the General Educational Development (GED) tests, the Armed Services Vocational Aptitude Battery, and for College Boards or the College Level Examination Program tests. In the advanced tier of the functional component, a comprehensive array of employability and life skills materials, useable by those beginning with eighth-grade skills, cover a full array of functional objectives considered necessary for successful adult performance.

Each of the three tiers are subdivided into four levels. The twelve levels contained in the three tiers of the Academic Competencies Component roughly correspond to grade levels in the sense that successful completers of each level will usually average this grade achievement on norm-referenced tests. Hence, completers of Tier I. Basic in the Academic Competencies Component will have achieved "basic literacy" as it is usually defined, and will have reached the "takeoff" point where, according to most studies of the learning process, learning can be more independent and gain rates accelerate. Completers of the Tier 2. Intermediate segment of the Academic Competencies Component will have the necessary skills for entry into and easy mastery of GED programs, as well as beginning employment. The first two levels of the Tier 3. Advanced segment of the Academic Competencies Component provide GED-level skills, while the second two levels can prepare an individual for college or for entry into advanced vocational training.

The three tiers of the Functional Competencies Component correspond roughly to Adult Performance Levels as measured by the tests developed under the Adult Performance Level project in the early 1970s to assess the abilities of individuals to meet the tasks and challenges they are likely to face as adults and breadwinners. Completion of materials in the Tier I. Basic segment of the Functional Competencies Component should assure at least marginal competency mastery, or APL Level 2, while completion of the Tier II. Intermediate segment should assure APL Level 3 or adequate competency on each functional dimension. Some states provide high school accreditation for mastery of the materials in the Tier III. Advanced segment of the Functional Competencies Component, or a combination of this with completion of the GED.

In each tier, the broad academic and functional competencies domains are subclassified into subject strands of related and progressively more challenging objectives and materials which are sequenced over the four levels within the tier. Just as regular education curricula become more varied and specific at higher levels, the strands are more numerous and definitive in the more advanced tiers. In the first tier of the Academic Competencies Component, there are two subject strands--(1) Basic Mathematics and (2) Reading Fundamentals. In the intermediate tier of the

Academic Competencies Component, there are three strands--(1) Intermediate Mathematics, (2) Developmental Reading, and (3) Specific Language Skills. The specification of subject strands in the Tier III. Advanced segment of the Academic Competencies Component follows the convention adopted in the General Educational Development tests and the College Level Examination Program, i.e., there are five subject strands covering (1) Advanced Mathematics, (2) Reading and Humanities, (3) Writing, (4) Social Studies, and (5) Science.

In the basic and intermediate functional competency tiers, there are also two and three strands, respectively. In Tier I, the strands are (1) Basic Occupational Knowledge and (2) Coping Skills; in Tier II the strands are (1) Intermediate Occupational Knowledge, (2) Intermediate Consumer Economics, and (3) Life Skills. The Tier III. Advanced segment of the Functional Competencies Component follows the convention adopted in programs and curricula structured around the Adult Performance Level tests; i.e., there are five strands covering (1) Advanced Occupational Knowledge, (2) Advanced Consumer Economics, (3) Government and Law, (4) Health, and (5) Community Resources. The objectives and materials covered in separate subject strands in the advanced functional tier are included as levels, units and lessons within the fewer strands in the intermediate and basic tiers, where they are, of course, addressed in a more general and rudimentary manner. There is a greater relative emphasis on employment preparation in the basic and intermediate tiers, because job readiness and access are probably the most critical immediate needs of the individuals with limited academic skills who would be placed in these tiers.

The organizational matrix of the Comprehensive Competencies Program is, therefore, as follows:

COMPREHENSIVE COMPETENCIES PROGRAM ORGANIZATIONAL MATRIX

ACADEMIC COMPETENCIES COMPONENT

TIER I. BASIC

Subject Strand 1. Basic Mathematics		Subject Strand 2. Reading Fundamentals	
Level 1	Addition	Reading Readiness	
Level 2	Subtraction	Elementary Reading Skills	
Level 3	Multiplication	Foundation Reading Skills	
Level 4	Division	Advanced Reading Skills	

TIER II. INTERMEDIATE

Subject Strand 1. Intermediate Mathematics		Subject Strand 2. Developmental Reading		Subject Strand 3. Specific Language Skills	
Level 1	Fractions	Grade 3 Reading		Language Skills - 1	
Level 2	Decimals	Grade 4 Reading		Language Skills - 2	
Level 3	Percentages	Grade 5 Reading		Language Skills - 3	
Level 4	Geometry	Grade 6 Reading		Language Skills - 4	

TIER III. ADVANCED

Subject Strand 1. Advanced Mathematics		Subject Strand 2. Reading and Humanities		Subject Strand 3. Writing		Subject Strand 4. Social Studies		Subject Strand 5. Science	
Level 1	Primary CIP	Primary CIP		Primary CIP		Primary CIP		Primary CIP	
Level 2	Comprehensive CIP	Comprehensive CIP		Comprehensive CIP		Comprehensive CIP		Comprehensive CIP	
Level 3	Primary College Prep	Primary College Prep		Primary College Prep		Primary College Prep		Primary College Prep	
Level 4	Comprehensive College Prep	Comprehensive College Prep		Comprehensive College Prep		Comprehensive College Prep		Comprehensive College Prep	

FUNCTIONAL COMPETENCIES COMPONENT

TIER I. BASIC

Subject Strand 1. Basic Occupational Knowledge		Subject Strand 2. Coping Skills
Level 1. Career Choice		Independent Living
Level 2. Job Search		Money Management
Level 3. Job Getting		Food and Health
Level 4. Job Holding		Government and Community Resources

TIER II. INTERMEDIATE

Subject Strand 1. Intermediate Occupational Knowledge		Subject Strand 2. Intermediate Consumer Economics	Subject Strand 3. Life Skills
Level 1. Career Choice		Induction	Independent Living
Level 2. Job Search		Consumer Marketing	Family and Self
Level 3. Job Getting		Banking, Credit and Insurance	Community Resources
Level 4. Job Holding		Personal Relationships	Government and Law

TIER III. ADVANCED

Subject Strand 1. Advanced Occupational Knowledge		Subject Strand 2. Advanced Consumer Economics	Subject Strand 3. Government and Law	Subject Strand 4. Health	Subject Strand 5. Community Resources
Level 1. Career Choice		Induction and Migration Resources	Government Structures and Functions	Preventive Care and Maintenance	Information Sources
Level 2. Job Search		Consumer Marketing	Citizenship	Personal Care	Information
Level 3. Job Getting		Banking, Credit, Taxes and Insurance	Law	Self and Family	Community Services
Level 4. Job Holding		Relationships and Housing	Contracts and Documents	Recreation	Migration Resources

Within each level in each subject strand, units address more detailed objectives subsumed by the general level objective. There are varying numbers, but usually two to five, units per level. Each can usually be mastered in less than ten, and rarely more than twenty, instructional hours. Lessons within each unit address very specific objectives subsumed by the units. There are varying numbers of lessons per unit, but usually between two and five, which are usually structured so each can be completed in an hour or less.

For each lesson objective, there are specific assignments which reference commercial and public domain print and audiovisual materials, providing specific pages or sections appropriate for the lesson objective. The recommended Core Materials for each lesson were selected after a comprehensive screening of most available remedial education, world-of-work and life skills materials, as well as audiovisual courseware. The screening aimed to assure lesson quality, readability at the assigned level, appeal to an adult or young adult audience, absence of race and sex bias, as well as availability and reasonable cost. Most of the recommended materials have been utilized in action settings in order to determine which work best according to instructors and learners. Other print and audiovisual materials of reasonable quality are referenced as supplements, particularly where a core material for one lesson covers other objectives effectively but not as well as the recommended core materials. Acquisition of all core materials provides a variety of options for individual learners. An inventory of these materials, referenced to the subject strand in which they are used, is provided with the Comprehensive Competencies Program. Other materials already available or preferred by the user may, of course, be substituted for recommended materials.

Computer-assisted instruction lessons covering the detailed lesson objectives in both the academic and functional competency domains have also been screened and referenced. The references encompass the major types of computer instructional systems, including lessons for Apple microcomputers, PLATO on-line and micro, and Computer Curriculum Corporation on-line and micro. Other systems such as IBM, Acorn and TRS-80 are also being referenced to provide economical and effective CAI options to meet each unit's or lesson's objectives. Software is expanding so rapidly that there is no possibility of inclusiveness in the software review, but the recommendations cover most of the major objectives, so that whatever computer hardware is available, it can be integrated with the paper and pencil, plus audiovisual, instructional program. The Comprehensive Competencies Program can operate with no CAI, or with almost any mix or intensity of computers.

In addition, a range of Supplementary Activities have been developed or selected from existing public domain remediation and employability development programs. These individual, group and experience-based learning activities are referenced to

specified learning objectives and are provided with the Comprehensive Competencies Program to provide further instructional options beyond the referenced print, audiovisual and CAI materials. This saves the user the time needed to develop worksheets and to structure activities; it permits focus on developing these supplements which users consider population- or site-specific.

Although the framework and curricula of the CCP are comprehensive, they are completely modular. Any subset of tiers, subject strands, levels or units can be used alone. For instance, Levels 1 and 2 of the Tier III. Advanced segment of the Academic Competencies Component represent a self-standing GED program. It is not necessary to secure or utilize Tiers I or II academic materials if all enrollees in a given project are referred for, and capable of, immediate entry into the GED. Likewise, an employment program might focus solely on occupational knowledge in the three tiers of the Functional Competencies Component, or perhaps just the job search levels within these subject strands, so only materials used in these strands or levels need be purchased.

The organizational matrix of objectives and materials is supported by a framework of mastery tests which can be used to determine general as well as specific competencies before and after instruction. These tests allow each individual to be placed in an appropriate tier, strand, level and unit, and then to advance through lessons, units, levels, strands and tiers as quickly as mastery is achieved. Different individuals may, thus, begin at different points in the hierarchy, utilizing different materials at any point in time, and achieving mastery of assignments or completing the entire program at quite different speeds. An individual may be receiving instruction at one level in one subject strand, say Intermediate Mathematics, but another level in another strand, say Reading Fundamentals.

In both the Academic and Functional Competencies Components, the framework of objectives and related mastery tests which diagnose competency deficiencies and prescribe instruction are based on systems which have been broadly applied and have demonstrated their feasibility. Short Tier Locator Tests covering reading and mathematics skills are provided to determine whether the individual's competencies are in the basic, intermediate or advanced range. Tier Mastery Tests are provided as composite indicators of competencies within each strand, so that relative subject strengths can be determined. Subject Strand Mastery Tests are provided to determine at which of the four levels in the tier instruction should begin for each subject strand. Level Mastery Tests can be used to determine appropriate unit placement. Alternatively, the Unit Mastery Tests can be taken sequentially until the learner is unable to pass, and then instruction can begin with this unit. There are two forms of almost all Mastery Tests, and in almost all cases, test items are sectioned to address subsumed lessons, units, levels or

strands, so that section subscores provide diagnoses of more specific deficiencies.

Recognizing the limitations of all tests, this diagnostic/prescriptive structure builds in some safety valves by linking the tests directly to instruction. If the initial placement is too low because an individual scores abnormally low on a given day on a given mastery test, then the level or unit mastery tests will be passed sequentially or the component lessons quickly completed, and the individual will move rapidly to the point where the difficulty of instructional materials matches his or her "real" competency level. In the case of too high a placement, mastery of units will prove difficult, and suggested remediations will not help, so the individual may be stepped back to a lower level. In other words, the placement tests are sequenced and then followed by an assessment of performance in actual materials, so the system is not totally reliant on single diagnostic tests.

The mastery tests are also used to measure, track and benchmark competency attainment and progress within the CCP hierarchy of competency objectives. At the end of each lesson (usually 15 minutes to one hour) there is a Lesson Mastery Test contained in the materials which are referenced. At the end of a unit of related lessons, the Unit Mastery Tests are available to determine whether the lesson objectives have been achieved. At the end of the series of units in a level, the Level Mastery Tests can check whether skills have been mastered. Subject Strand Mastery Tests provide benchmarks of subject mastery. Finally, to exit from a tier, there is a Tier Mastery Test which can provide a certification of global competencies as well as evidence of the balance of competencies necessary to begin the next tier of instruction, to enter the labor market, or to move into post-secondary education.

The test framework incorporates several widely accepted certifications. Grade-normed tests of reading and mathematics are used as Subject Strand Tests in basic academics, and of reading, mathematics and language arts in the intermediate tier. (Various forms of the TABE test are recommended but not mandatory.) The official GED Practice Tests are used as the Subject Strand Mastery Tests for the advanced academic tier. Simulated CLEP or College Board tests can supplement the GED when a learner is participating in the College Prep segment. The APL Adult and High School Surveys are used as the Tier Mastery Tests in the intermediate and advanced functional competency tiers, and the APL Content Area Measures are adapted to document mastery of subject strands in each tier. These nationally-normed tests "anchor" the CCP's self-contained mastery tests to recognized standards so that achievements within the system will be credited outside the system.

Individual potential and ability can be assessed not only by diagnostic tests at entry or exit, but also by tracking progress through the lessons, units, levels, and strands relative to hours

of related instruction. The attained competencies can be documented to certify abilities and accomplishments. Progress through the system can be used as a basis for certification benchmarks -- for instance, completion of Tier II. Intermediate Academic Competencies (including attainment of adequate scores on the normed strand tests) might be certified by a state or locality as proof of an entry employment level, so that employers will know that applicants with this certification can read and understand instructions or handle basic computation. Because a series of lessons, units, levels, and strands must be mastered to achieve this benchmark, the results are more dependable than if a single test alone were used for the certification.

The instructional effectiveness of a delivery agent can be assessed, utilizing the Comprehensive Competencies Program matrix, by tracking the average progress of learners per hour of instruction relative to the mastery tests built into the system. Alternatively, separate norm-referenced exit, or entry and exit, tests can be utilized to validate the gains registered and recorded by the delivery agent on the built-in tests. For instance, a week after entrance into the academic program and a week before scheduled exit, normed academic or functional tests might be given by an independent agent to determine gains per instructional hour, cross-checking internally measured gains.

The CCP framework of objectives and mastery tests might also be utilized as a structuring and management tool, even without requiring or utilizing the recommended materials. Indeed, delivery agents have the freedom to substitute or supplement recommended lessons in order to meet particular needs of those whom they serve, as well as to adapt to staff abilities and interests. If the same objectives and mastery tests are utilized by different delivery agents, it is possible to compare the relative effectiveness of their various curricula. Alternatively, the matrix can be used to specify which objectives are being pursued for individuals or by projects. Individual employability development plans could be referenced to the matrix, detailing which of the objectives an individual is expected to master during a scheduled period of participation based on assessed entry competencies. Progress could, then, be tracked on an individualized basis relative to this set of specified objectives. Likewise, the service mix of different remediation and training projects might be specified in terms of average hours of treatment related to each broad objective, and the average gains expected as a result of these treatments.

To facilitate these educational, management and evaluative applications, a simplified information system has been developed for the CCP which tracks the time each learner spends in completing every lesson, unit, level, strand, and tier, the use of supplementary activities, entry, and post-program information, as well as test-measured gain rates and gain rates per instructional hour during participation. Test scoring and record-keeping have also been automated, with software developed for an inexpensive microcomputer, so that the drudgery and difficulty is

minimized. A computerized analysis system provides the software for easy, flexible yet detailed assessment of all test score and participant information.

Rationale for the CCP Approaches

Common sense provides the rationale for the approaches adopted in the CCP:

There is no alternative to an individualized, self-paced, modularized approach where individuals with widely varying potential and actual competencies must be instructed, usually in the same classes or groups, and where learners may enter and exit from instruction at any time. The primary mission of the CCP is to help the economically and educationally disadvantaged who have failed in, or are likely to fail in, traditional classroom settings. Their academic abilities will generally lag school norms, but by widely varying degrees and for widely-varying reasons, so that group instruction is difficult to match to their needs, particularly when services are delivered to small numbers so that ability grouping is not possible. Functional competencies will also vary widely. These are not taught in most schools in any organized way. The skills are learned in a "hit or miss" fashion, so any group of learners, even if they have similar academic skills, will differ in their average functional competency levels. Thus, a "class" in a remedial program is likely to include some learners who read at the ninth or tenth grade level, some who read at the fifth grade level but have the potential to advance, and others who will have trouble every mastering basic academic skills. Some may have held jobs for years and have no deficiency in occupational knowledge, while others may have never worked. Some have lived independently and have learned by "hard knocks", while others may not know how to tell time or to use public transportation. Teaching to the average in the group is likely to leave the better prepared and high potential students bored, and the laggards dismayed. Likewise, when new participants are added on a year-round basis, it is difficult, if not impossible, to place them in the middle of an ongoing instructional sequence. Waiting until the beginning of a new class ignores their critical immediate needs.

There is little wasted effort in individualized and self-paced instruction. Each person's skill levels are assessed, and then instruction is provided to meet specific deficits with materials that are neither too easy nor too hard. Each person can progress through a lesson or series of lessons at his or her own pace, with the incentive of moving on to other desired objectives once specified skills are mastered. This permits those with potential to advance rapidly. There is no waiting time for the group activities to begin and end. Questions of a single individual do not delay others in the classroom. The failure of learners to work or progress can be immediately spotted.

Instructor time can be spent in teaching rather than in lesson planning or test-preparation.

There is immediate feedback and positive reinforcement. The lessons are all designed for completion well within a normal class period. Most include mastery exercises so that the learner will realize demonstrable gains in a short period. The units and levels are clearly laid out so that the learner can track his or her longer-term progress. With each individual moving at his or her own rate, competitive pressures are reduced. For slow learners, this is critically important so that they do not move forward without mastery of materials, but can get credit whenever they accomplish a learning goal.

The learning process is more accountable. Objectives and mastery criteria are pre-established so that the effectiveness of instructors, learners and learning centers can be tracked by the same groundrules. What learners have mastered can be clearly determined and benchmarked. Learners have primary responsibility for their own work within established groundrules. Instructors know who is learning and who is not, and they have the tools to address the needs of the latter group. Managers can compare the progress of similar learners under different instructors, and funding sources can compare the performance of alternative delivery agents.

Materials use can be maximized and options are available to meet individual needs. Most of the materials are in booklets, separate videotapes, or files of diskettes. Each learner in a classroom may be operating at a different level in a different unit or subject strand. One set of materials can, therefore, serve a large number of learners, since each is using only the module he or she needs as opposed to requiring a textbook that includes all the modules. Smaller numbers of a larger range of materials can, therefore, be affected. This means that there are always alternative assignments immediately available, frequently using a different mode of delivery, where one mode or material does not work for a particular learner.

Staff skill requirements are reduced. Good teachers are a benefit in any system, but bad or mediocre teachers are less of a liability when the curricula is established and the means of determining and remediating learning problems are built into the system. A major part of traditional teacher education is curricula development and lesson planning rather than communication of materials. The planning skills are not vital in a programmed learning system, so individuals who lack these skills but are effective communicators of material can be utilized. Aides can be effectively utilized in the educational production function. With the use of a standardized system, detailed technical assistance and training is much more feasible than when approaches vary from teacher to teacher, or site to site.

Computers can be integrated effectively. Computer-assisted instruction is inherently an individualized approach, and so can be easily referenced to the objectives of a programmed learning system. In traditional classrooms, particularly when lesson plans vary from class to class, it is much more difficult to determine when a particular CAI lesson fits a particular curricula aim, i.e. each teacher must repeat the process of integrating available CAI with his or her lesson plans. Because computer lessons are integrated with self-standing written and audiovisual materials, computer time can be varied depending on the availability of terminals. For instance, four learners may be working on written materials while two are on terminal if there is one terminal for every three students, but the ratio can be altered to allocate any learner/terminal ratio. Computer scoring and recordkeeping are integral because there are so many tests in the system; the programmed learning is effective without automation, the benefits increase exponentially when all routine functions are computerized.

The literature on what makes schools and teachers effective supports these common sense arguments for the CCP approaches. According to the most comprehensive review of educational excellence at the secondary level, the identified elements of effective curricula and instruction are¹:

1. high academic learning time in and out of class;
2. frequent monitoring of student progress;
3. a close relationship between curricula and objectives;
4. a variety of teaching strategies to meet individual needs; and
5. opportunities for student responsibility.

The identified elements of effective schools and learning environments, in addition to the sine qua nons of administrative leadership, community support and caring teachers, are:

1. clear academic and social behavior guidelines;
2. order and discipline;
3. high expectations; and
4. rewards and incentives.

Similar features are found in effective post-secondary remediation efforts. According to a nationwide review, the systems which are most effective include (in addition to committed instructors, counseling and placement, and credits for successful participation²:

1. Strong administrative support specifying standards and uniformly assessing all learners so that those needing help are provided it and have a reason for completion;

2. Multiple learning systems to meet each learner's preferences and needs;

3. flexible completion strategies so learners can progress and complete at their own pace;

4. use of peer tutors and volunteer instructors;

5. structured courses with the competency requirements clearly enunciated;

6. frequent monitoring of learner progress and feedback of results; and

7. built-in program evaluation.

A nationwide study of adult basic education programs by the National Adult Literacy Project has identified the following success elements:

1. clear articulation of learning goals for participants, instructors, and projects;

2. use of a variety of materials including materials developed on-site to supplement commercial products,

3. caring teachers able to identify and address each learner's needs; and

4. a competency-based approach to provide frequent feedback, clarity of objectives, and attainable steps which can be maintained in the usual short and sporadic participation from adult learners.

Clearly, these are the elements which are maximized by the self-paced, open-entry and -exit, programmed learning instructional approach which integrates print, audiovisual and computer lessons. The time-on-task in an individual system is typically double that in a usual classroom. Materials are available to meet varying learners needs, and it is clear when to use these materials. The "bite-sized chunks" of instruction provide immediate feedback and the tests permit frequent monitoring. Learners can see what objectives they must master and have no reason to waste time, and hence take responsibility. Learning objectives are clear to learners and instructors. The use of aides is facilitated, increasing the possible one-on-one contact.

The effectiveness of these approaches is also documented by extensive comparative research on instruction tools and methodologies. For instance, a number of studies have compared programmed learning with traditional classroom instruction. The primary summaries of research have found the following:

1. Evaluations of the Follow-Through program, which provided education through the third grade level to disadvantaged youth participating in Head Start, compared two models emphasizing unitized mastery learning with six other models emphasizing open, behavioral-oriented and wholistic educational approaches. Each of these models was implemented in multiple sites, with uniform gain score data gathered on participants instructed by each approach. Both of the programmed learning-oriented models produced significant gains in reading, math and spelling which exceeded, by a wide margin, the results obtained by the other models.³

2. A survey of 1950s and early 1960s research found 36 studies comparing programmed instruction with traditional classroom instruction. Half showed a significant difference in performance between the two approaches, with all but one of these showing a significant superiority for the programmed learning approach. Eight of the studies reported that required materials were completed in less time with programmed learning; none reported longer learning times.⁴ An overlapping summary of 112 1960-1964 studies comparing programmed and traditional instruction found the programmed approach superior in two-fifths of the studies, no difference in half, and less effectiveness in a tenth.⁵

3. Several summaries of findings concerning mathematics instruction at the elementary and secondary levels found significant differences between programmed and traditional approaches in a quarter of the studies; among these, the programmed approach was superior two-thirds of the time.⁶ A more sophisticated 1977 quantitative synthesis (or "meta-analysis" which incorporates objective search and screening procedures and standardized statistical analysis of composite outcomes) of 51 separate studies of mathematics teaching found that the individualized systems raised student performance an average of a sixth of a standard deviation relative to students in traditional instruction (or from 50th to 57th percent on standardized achievement examinations).⁷

4. The most recent meta-analysis of 49 studies of individualized systems of instruction in secondary schools found that the programmed learning approach yielded better results than traditional instruction in two-thirds of the cases, and worse in a third. In only 13 studies were the differences statistically significant, 70 percent of the time in favor of personalized instruction. The mean difference in achievement was a tenth of a standard deviation in favor of personalized instruction (roughly the difference between the 50th and 54th percentile on nation-

ally-normed tests). The differences were particularly significant in courses of short duration.⁸

5. A meta-analysis of 61 studies comparing individualized with regular college-level classroom instruction found an average achievement differential in final examination scores of half a standard deviation in favor of programmed learning (representing an increase in the final examination success of the typical classes from the 50th to 70th percentile of national norms). The retention was greater for programmed instruction and the achievement differentials were as great or greater on essay tests as on objective tests. There was no difference in overall study and class-time. Analysis of the causal factors found that requirements for and checks on unit mastery, the large number of unit tests, the immediate feedback, and the built-in review, were all significant success factors.⁹

The CCP facilitates the use of computer-assisted instruction, and there is substantial evidence from educational research documenting the positive learning impacts from CAI supplementation:

1. A 1972 review of 30 experiments covering 10,000 elementary students that compared traditional instruction supplemented by CAI drill and practice with traditional instruction alone, concluded that "there appears to be rather strong evidence to the effectiveness of CAI over traditional instruction where effectiveness is measured by standardized achievement tests."¹⁰

2. A 1974 review of a pot-pourri of experiments concluded that CAI as a supplement could significantly improve achievement scores at the elementary and secondary levels; the gains produced by CAI supplements were linearly related to the amount of time spent on terminal; and computer-based instruction was at least as effective when used as a replacement in secondary and college education, but resulted in substantial time savings in some cases.¹¹

3. A 1975 synthesis of 33 evaluations concluded that "studies have been fairly consistent in showing that increased achievement results from the use of CAI as a supplement to traditional instruction. Where CAI is substituted in whole or part for traditional instruction, half of the studies find little or no difference in gains while half find that the CAI students do better." Most of the subset of studies which assessed learning time found significant time saving from computer instruction. However, one of the larger studies which compared 1600 students using CAI drill and practice as a supplement to normal math instruction, with 1000 students receiving programmed instruction and audiovisual supplements, found no difference in the gain rates of the two groups.¹²

4. A 1977 meta-analysis of studies of mathematics education in elementary and secondary schools concluded that computer-based programs raised student achievement by two-fifths of a standard

deviation (or from the 50th to 60th percentile on national norms).¹³ A 1981 summary analysis of studies of elementary and secondary mathematics studies found an overall effect of nearly half a standard deviation gain for computerized math tutorial programs, and a third of a standard deviation for computer drill and practice programs.¹⁴

5. A 1983 meta-analysis of 48 studies comparing computer-based with traditional instruction of secondary students found that in 39 cases, students from the computer groups scored higher on final examinations and/or final achievement tests; in the other nine cases, the reverse was true. In 23 or the 25 studies with statistically significant differences, the computer-based instruction was superior. The mean differential was a third of a standard deviation. In four of the five studies tracking retention, the student receiving computer instruction had better retention of what they learned (though the differences were not statistically significant). Computer-based instruction resulted in substantial learning time savings according to the two studies which tracked this variable. The effect size was greater in the studies where CAI substituted for, rather than supplementary to, regular instruction (a third of a standard deviation compared to a fifth). It was much greater for shorter treatments, and for reading vs. mathematics instruction. Perhaps most significantly, the differential effects were an eighth of a standard deviation where the instruction focused on high ability students, but nearly half a standard deviation when computer-assisted vs. regular instruction was provided to students with below-average ability.¹⁵

6. A 1980 meta-analysis quantitatively summarized the findings of 54 studies which compared college students in computer-assisted and conventional classes. In 37 studies, the students in the computer-assisted courses realized greater achievement; in 17 studies, conventional instruction proved more effective. In 13 of the 14 studies where the differentials were statistically significant, the computerized instruction was more effective. The average effect size for all studies was a fourth of a standard deviation in achievement. There was no effect on course completion, but a one-third reduction in instructional time per week.¹⁶

The CCP is, thus, consistent with the findings from education research about what makes schools, teachers and remediation programs effective. Its use of an individualized, self-paced instructional approach makes sense in light of the evidence that this approach is generally as effective, or more effective, than traditional instruction. The incorporation of computer-assisted instruction is justified by the evidence that CAI is highly effective as a supplement to regular instruction, and equal to or better as a substitute.

Strengths and Limitations of the CCP

Based on these common sense and research foundations, the CCP is an effective mechanism for implementing and managing competency-based, computer-assisted instruction in a variety of settings:

1) The CCP structures and specifies academic and functional competencies in terms of hierarchical objectives, and provides an array of tests to determine mastery of these objectives. Because the work is already done, this saves enormous time in developing competency-based programs. Rather than reinventing the wheel in each local context, the CCP framework can be used as a foundation for program design, curricula development, individual employability development planning.

2) The CCP references a set of cost-effective courseware which will teach the specified objectives. Based on a comprehensive screening of available written, audiovisual and computer-assisted materials, as well as extensive field testing in operating programs, the recommended materials are workable as a system. Given the enormous cost of locating, screening, and field-testing materials, the CCP provides a short-cut for those who are designing, delivering, and overseeing remedial education, employability development and life skills courses. Where local materials may be better for some of the objectives, they can be substituted and their greater effectiveness should be demonstrable in more rapid competency attainment.

3) The CCP provides a framework of diagnostic tests and decision rules, as well as mastery tests, so that the needs of each learner can be determined and placement made into the appropriate level and subject. The learner needs to cover only those areas of deficiency, and can move at his or her own pace through the materials. The structure of tests and individualized, self-paced lessons permits simultaneous services to individuals with widely varying initial and potential competencies, permitting full utilization of materials, facilities and staff. The result is extremely efficient and effective instruction, with little wasted time and little waste of resources.

4) The CCP provides a means of effectively using computers for instruction. Because all objectives are covered by print and audiovisual materials, no CAI is needed. But a range of software for a range of computers has been referenced to specific objectives, so that for any major computer or microcomputer system, it is clear which software is needed and when it should be used for any learner, and it is possible to fully use any hardware and software which is available.

5) The CCP is a management system for remedial education, employability development and life skills training. It provides the means for organizing and tracking classroom activities. The

aim is to maximize the time that each learner spends in materials appropriate to his or her needs. By providing a workable core system, but flexibility for modification and supplementation, it permits better delivery agents and teachers to improve on the system, without requiring sophistication in curricula development and program design from the average operator. By tracking individual progress through a structured set of objectives, it permits the teacher to better determine individual strengths and weaknesses, and the range of available materials facilitates customization to meet specific learning problems. By clearly specifying the objectives of services, and by standardizing the way in which the accomplishment of objectives is measure, the CCP facilitates the comparison of the effectiveness of alternative delivery agents, teachers and curricula.

6) The CCP integrates evaluation, management and instructional information. This "congruency" assures that no extra paperwork is generated and that learners, instructors, learning center managers and program evaluators all have the information they need without undue burdens. Inexpensive computerization of management and evaluation functions facilitates use of these systems.

7) The CCP is a replication mechanism permitting the implementation of effective basic skills instruction in settings with little experience. Because the approach is standardized, so that practitioner-to-practitioner technical assistance is possible, because all the components are integrated so that no development is required, and because everything is simplified as much as possible with all that is needed for a comprehensive learning center deliverable in a "kit", the cost and failure rate in replication is reduced enormously.

In other words, the CCP is "comprehensive" not only because it spans both academic and functional competencies, covering basic skills from the most rudimentary to the college entry levels, as well as a range of functional competencies, or because it utilizes and cross-references print, audiovisual, as well as computer-delivered instructional materials, but also because it integrates assessment with prescription, evaluation and management imperatives with instructional needs, and practical implementation considerations with research findings about what works best for whom.

Yet it is also important to stress what the CCP is not:

1) The underlying instructional system is not the only, nor necessarily the best, way to teach basic skills. Many experts believe, for instance, that basic reading is most effectively taught to illiterates on a one-on-one tutorial basis. Where this is possible as a substitute or supplement to the CCP approach, it may be desirable. Other materials and other orderings of objectives could be more effective. Indeed, an alternative individualized, self-paced academic instruction model which has demonstrated its success is currently being adapted for

inclusion as an option to the Job Corps-based intermediate academic component of the CCP. This alternative system is more specific about language and reading objectives, contrasted with the developmental reading approach outlined for the CCP which emphasizes repeated practice and adaptability of reading materials to individual interests. In mathematics, the alternative approach sequences specific skills in a different way, for instance, presenting instruction on addition at several levels rather than giving this skill primary emphasis at the outset. Likewise, alternative basic reading approaches are being developed for the basic academic competencies tier in order to serve learners with limited English-speaking ability and others with learning disabilities, who may be taught best in different ways.

Similarly, the organizational strands, with their specific levels and units, are not etched in stone. There are many different ways to cluster subjects. The APL and GED structures used in the advanced tier were adopted because the conventions are widely accepted, not because it can be conclusively proven that they are the best conceptual approaches. The two- and three-strand approach of the first and second academic tiers was based on the Job Corps model and follows the patterns in most primary school curricula, but other structures might make equal sense.

The objectives could also be articulated more generally or more specifically. Likewise, the requirements for demonstrating mastery of objectives could be more or less stringent. The objectives matrix and proficiency standards represent implicit judgments about what competencies are most important; these are reflected in the specificity of objectives, the requirements for mastery, and even the sequencing of materials, since few will complete entire segments. For instance, Occupational Knowledge is a subject strand in all three tiers of the Functional Competencies Component; whereas Government and Law is a unit in the first tier, a level in the second, and a subject strand in the third. This reflects the judgment that the most critical need of the more disadvantaged individuals served by the first tier is to find gainful employment. Like any judgment, this is arguable.

2) The objectives are not all-inclusive. For example, in the Academic Competencies Component, there is little emphasis on practice writing and composition except as a supplementary activity. There is almost no attention to "oracy", (i.e., oral skills). Some experts believe that the APL objectives, which are the basis of the Functional Competencies Component, do not put enough emphasis on the demands of an increasingly technological society. Some competency-based systems place more emphasis on electrical and mechanical concepts, and the use of tools. Other theorists emphasize the need for learning to learn.

3) The CCP is not a completed system. In addition to the development of alternative academic instructional approaches, English-as-a-second-language and learning disabilities options

for basic reading instruction, plus ongoing screening of CAI and print materials, the tests, objectives, and lesson options will need to be finetuned even though the CCP is based on frameworks which have demonstrated effectiveness in a range of settings. Written and audiovisual materials must be continuously updated and supplemented. Other additions, such as using the CCP materials and lessons to prepare for the Armed Services Vocational Aptitude Battery (using the ASVAB like the GED practice tests for diagnosis and mastery assessment), require research, development and field-testing. Yet the CCP does provide a framework for those continuing improvements, and a foundation for incorporating the materials and approaches developed at the local level.

4) Most critically, the CCP is not a complete education system nor a substitute for traditional classroom approaches. Basic skills, particularly those measured by short-answer achievement tests, can be taught well by the individualized, self-paced, modularized approach of programmed learning. While it is clear that such skills are necessary for further educational progress and for success in the labor market, they are not sufficient. Broader skills such as critical thinking, interpretation, problem-solving and learning-to-learn receive much greater emphasis and development in interactive, teacher-led instructional settings; and these broader skills are vital. Programmed learning can be delivered without group activities and with limited involvement of trained teachers. Yet because the system is so structured and repetitive, group activities may be crucially needed as a supplement. The effectiveness of the average teacher in addressing the individual learner's basic skill needs can be increased by the ability to pinpoint each learner's progress and problems, and to focus on teaching rather than lesson planning or test preparation. But this in no way implies that such a prepackaged framework is preferable to a traditional classroom setting under the supervision of a caring and effective teacher who has been trained to select and organize materials and has the resources to develop and acquire an optimal curricula. The CCP offers a route for supplementing what occurs in such classrooms, for reaching those individuals who do not "make it" in traditional setting and with traditional materials, and for delivering instruction in settings where skilled teachers are not available or learners vary too significantly to group into classes. The CCP offers a way of assuring reasonably adequate instruction, rather than a guarantee of excellence. It is not a panacea for shortcomings in the education system, but rather an additional tool for more broadly and effectively delivering basic skills instruction and remedial education in order to improve the competencies and life success of our work force and population.

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COMPREHENSIVE COMPETENCIES PROGRAM

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THE COMPREHENSIVE COMPETENCIES PROGRAM:

A DOLLARS AND SENSE APPROACH

TO BASIC SKILLS INSTRUCTION

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January 1985

The Investment Decision

The Comprehensive Competencies Program (CCP) facilitates investments in, and greater use of, educational technologies, to improve the efficiency and effectiveness of basic skills instruction. For most learning objectives covered by the CCP, there are a number of audiovisual and computer-assisted instruction options referenced as supplements to the print kits, programmed learning series booklets and books referenced as core materials. The options encompass a range of technologies--including tape recorders and recordplayers, videocassette players, 16mm cartridge players and sound/filmstrip machines, plus a variety of microcomputers as well as cluster and networked mini-computers. The courseware referenced for this varied equipment includes computer-assisted instruction (CAI) software, filmstrips, videos and tapes from over 50 different publishers. In addition, the CCP includes its own software, used with inexpensive microcomputers, to automate the scoring of its hundreds of competency tests, to enter, access and report participant information, to analyze learner progress and test results as well as to access and modify lesson assignments.

The CCP is designed so that it can be effectively used without these education technologies. It is recommended, but not required, that a comprehensive array of materials be used with the CCP. The CCP is completely modular so any segment can be implemented separately and only the core materials for this segment are critical. CAI is always referenced as a supplementary rather than primary instructional material. The CCP information system can be maintained and its tests scored manually. Without these extras, the CCP remains an effective system for managing and delivering basic skills instruction.

Nevertheless, most users choose to take advantage of the education technology options for instruction and management. The usual application of the CCP is in a comprehensive learning center outfitted with a full range of print, audiovisual and computer-assisted instruction materials (plus related audiovisual and computer equipment) covering beginning through college level academic subjects and the most basic to the most advanced functional skills. Recognizing the efficiencies of the CCP software for test-scoring, recordkeeping, analysis and lesson assignment, almost all CCP users adopt these automated systems. Using aides to supplement instructors, the comprehensive learning center usually has a low student/teacher and aide ratio so that "high tech" can be combined with "high touch."

Such a comprehensive learning center is markedly different from the traditional classroom, where a group of learners are all taught the same subject by a specialist

teacher using the lecture approach, progressing in lockstep through the assigned textbooks and workbooks. In the CCP-based learning center, a diversity of learners may be working at the same time on many different subjects, at widely-varying levels, with each assigned to and progressing through subjects based on individual needs and abilities, using materials selected from the varied options by an instructor and several aides who separately guide and track the learning progress of each individual.

Common sense and education research suggest that learning is enhanced when each learner uses materials appropriate in level and subject for their abilities and interests, when instructional materials and media options are available to meet individuals' varied learning approaches, when the slow learners do not hold up those with more ability, and when aides supplement instructors so there can be more individualized attention. It may not be surprising, then, that CCP-based learning centers can achieve learning gain rates surpassing those in traditional classroom instruction. But computers, courseware and learning centers aides cost money, and the critical issue is whether the enhanced learning gains are of a magnitude to justify the extra costs. Before establishing a comprehensive, computer-based learning center, it must first be determined that the investment in educational technologies will be profitable.

Relative Cost-Effectiveness

Comprehensive CCP-based learning centers vary dramatically in size, amenities, courseware options, as well as intensity and mix of computers. However, a prototypical center might have the following characteristics:

- o It would be designed to serve an average complement of 36 learners, with a maximum capacity of 40. The learning center would have adequate floor space for easy movement (usually 1250-1500 square feet) with work and learning carrels for individual study, with carpeting and good lighting to create a pleasant learning atmosphere, and with a leisure area for reading and discussion.

- o The center would contain a full array of print and audiovisual courseware providing assignment options for all the objectives covered in the academic and functional components of the CCP, with bookshelves organizing the multiple copies of materials for easy access using the CCP referencing system, with the audiovisual equipment required for use of the filmstrips, 16mm cartridges, audio and video

cassettes, and with files for learner records and the thousands of pages of CCP tests and supplementary activities.

o The learning center would have one microcomputer for every three learners to deliver CAI supplements, with one frequent combination including five Apples with selected software from a range of publishers, two SONY micros with selected Computer Curriculum Corporation courses, and five Control Data Corporation/Texas Instruments Education Work Stations with the adapted PLATO software.

o The learning center would also have an Apple microcomputer with three disk drives, a printer and an optical mark reader dedicated to the CCP Computerized Information, Analysis and Lesson Assignment Systems which automate test-scoring and recordkeeping, evaluation and lesson assigning.

o The learning center would be established with the technical assistance of a trained practitioner to help minimize start-up problems, and there would be a necessary investment of staff time for training to familiarize managers, instructors and aides with the CCP approach.

o The learning center would be open as much as possible to accommodate learners who would be mixing CCP instruction with jobs, training, other education pursuits or family responsibilities; it would aim for 50 hours of weekly operations for 50 weeks each year, or 2,500 annual hours of use.

o The learning center would be staffed by an instructor and two aides during all open hours, requiring at least one full-time and one half-time teacher, plus three full-time equivalent aides, to cover all use hours. It would also have a half-time manager to handle contracts and administration.

The investment needed to establish such a prototypical learning center would be a little over \$50,000, offset by whatever materials, equipment and furnishings were already on hand; its annual operating costs would be \$133,000. (Table 1). Assuming five-year amortization of the start-up costs, at a 12 percent annual interest rate for investment funds, the annual amortization expense would be a little under \$14,000. Thus, the total cost of the learning center would be approximately \$150,000 each year. If the learning center were opened 50 hours weekly for 50 weeks, it would have a maximum annual capacity of 100,000 learner hours. If a 75 percent utilization rate were achieved during these open hours, a total of 75,000 attended instructional hours would be provided, yielding a total cost of \$2.00 per instructional hour (assuming no in-kind contributions, special cost-cutting or subsidies).

Table 1. Start-Up and Operating Cost Comparison For A
Prototypical CCP Learning Center vs.
Traditional Classroom Instruction

	CCP-Based Learning Center	Traditional Classroom Approach
<u>Start-Up Costs</u>		
1. Technical Assistance (10 days at \$250 including travel in CCP center; none in traditional)	\$ 2,500	\$ --
2. Apple microcomputer (6 at \$850 each in CCP center; none in traditional)	5,100	--
3. Scanner, printer and extra disk drives for information and analysis systems in CCP center; none in traditional	1,800	--
4. Apple CAI software in CCP center; none in traditional	2,000	--
5. SONY microcomputers (2 at \$3,700 each in CCP center; none in traditional)	7,400	--
6. CCC courses (5 courses \$400 each in CCP center; none in traditional)	2,000	--
7. Control Data Corporation/Texas Instruments Education Work Stations (5 at \$1,700 each including one set PLATO software in CCP center; none in traditional)	8,500	--
8. CCP-recommended print and audio- visual materials and audiovisual equipment in CCP center; reusable textbooks and consumable workbooks for each subject in traditional	11,500	8,000
9. CCP reproduction in CCP center; none in traditional	1,200	--
10. Carpets, learning carrels and lounge in CCP center; austere in traditional	4,000	2,000
11. Staff time for training and start- up (two weeks in CCP center; one week in traditional)	<u>4,000</u>	<u>2,500</u>
Total Start-Up	\$50,000	\$12,500
<u>Operating Costs</u>		
1. Staff		
Instructors (one full-time, one half-time at \$25,000 each plus 20% benefits in CCP center; three full- time in traditional)	\$ 45,000	\$ 90,000
Aides (three full-time equivalents at \$12,000 each plus 20% benefits in CCP center; none in traditional)	43,200	--
2. Rent (1,250 - 1,500 square feet x \$12- 10 per square foot including utilities)	15,000	15,000
3. Leased copiers, telephones, supplies at \$1,500 monthly plus \$500 monthly in CCP center for maintenance, repair and insurance for equipment	12,000	6,000
4. Manager (half-time manager at \$30,000 plus 20% benefits)	18,000	18,000
5. Use fee for CCP	<u>1,000</u>	<u>--</u>
Total Excluding Amortization	\$133,200	\$129,000
Amortization	<u>13,900</u>	<u>3,500</u>
Total Including Amortization	\$147,100	\$132,500

Obviously, there are cheaper ways to deliver basic skills instruction. The learning center floorspace could instead be divided into two 20-person classrooms furnished traditionally with a blackboard, teacher's desk, 20 student's seats arranged in orderly rows, with a small teacher's cubical for lessons preparation and test grading, substituted for the participants' lounge area in the learning center. The computers and software could be dispensed with, since CAI is so difficult to integrate with group instruction. Instead of bookshelves with booklets and kits of individualized, self-paced materials, the learners could be given reusable textbooks, with accompanying consumable workbooks, one per student per subject. No technical assistance would be needed since all teachers are schooled for the group classroom approach, and those familiar with the subject being taught could develop their own lesson plans in a week of preparation. This would reduce the start-up time and cost. The traditional student desks would cost less than learning carrels and there would be no need for amenities such as carpeting, since there would be little movement during class periods. Hence, furnishings would cost perhaps half as much as in the learning center. Assuming two-hour class periods in each subject for 13 weeks, with 5 classes a day in each classroom, and with textbooks and workbooks costing \$20 and \$5, respectively, materials costs would be a third below those in the learning center. The total start-up costs for the traditional approach would be a little under \$12,500 or one-fourth those in the CCP-based learning center.

The operating cost savings are not as significant because the classroom approach requires a more costly staffing pattern. There must be a teacher in each classroom during each instructional hour. For each subject the teacher must have time outside the classroom for lesson planning and assignments, test preparation and checking, recordkeeping and reporting--tasks which are not required or are automated with the CCP. Assuming, conservatively, one hour outside the classroom for each three in, the 50 weekly instructional hours in the two classrooms would require a minimum of three full-time equivalent teachers. Aides are not effectively used in the group lecture setting which is dependent totally on the instructor. They can relieve teachers during tests or class-time assignments, but they cannot do much to supplement teaching or to prepare lessons and tests, so they are usually considered a luxury which cannot be afforded. In the traditional "low tech" classroom, there would be no expenditures for computer maintenance, and there will be fewer consumables--only student workbooks would need replacing each year with textbooks usually lasting five years. It is a reasonable assumption that annual maintenance and materials costs would be half those in a computer-based learning center. However, because of the large number of teachers in the traditional approach,

its annual operating costs exclusive of amortization would remain only slightly lower than in a CCP-based learning center, i.e., \$129,000 vs. \$133,000. Since the investment to establish the traditional classroom instructional facility was a fourth of that needed for the learning center, its annual amortization cost would be one-fourth as great. Hence, total annual costs for the traditional approach would be a tenth below those of the CCP approach. Assuming 75 percent utilization of traditional classrooms and that they would be open the same hours as the learning center, the cost per attended instructional hour would be \$1.80 for the traditional education compared to \$2.00 for a learning center.

However, the traditional approach remains less costly per instructional hour only as long as there are enough learners with comparable instructional needs so they can be grouped into ability classes which can be instructed by a single teacher in a single classroom. The greater the diversity among learners and their needs the less the likelihood of achieving full enrollment in grouped classes which can be handled by a few teachers. Diversity is a fact of life in remedial settings where the CCP is needed most. For instance, among 100 remedial learners, there may be only three or four with beginning reading needs on one extreme, or five to ten with college prep capacities and expectations at the other extreme. Between these extremes, some learners will need academic-oriented instruction and some will benefit most from a functional approach which teaches academics as a means to practical ends. Some will need help in reading and others in math; some in consumer economics and others in health. If each need is to be addressed in a class with roughly comparable students and a teacher experienced enough with the subject to handle curricula development and lesson planning, assignments, test preparation; diagnosis and prescription for learners, the feasible groupings may be much smaller than 20, and there will be many different subjects taught so teachers will have to spend more time in outside preparation, increasing the teacher requirement. If the population to be served has such widely-varying needs, a more realistic projection of teacher requirements for the traditional education setting is that at least four full-time instructors, or three full-time instructors and one aide, would be needed in a two-class facility open 50 hours weekly, and the small class sizes (combined with attendance problems expected in both traditional and learning center remediation programs) will reduce capacity utilization below 75 percent. In contrast, the CCP learning center can maintain utilization by serving beginning readers and college-prep students, along with intermediate learners taking math, consumer economics or health, at the same time, with all subjects taught by the same instructor and aides, without increased burdens for lesson planning or class preparation. If the traditional approach uses four teachers while achieving only 65 percent

utilization, compared to 75 percent utilization with the most efficient staffing pattern in the learning center, the cost per attended instructional hour in the traditional setting rises to one-fourth above the learning center hourly instructional cost.

But even if capacity utilization could be maintained in the traditional classroom and even if the teachers were so wide-ranging and dedicated that just three could handle the instructional burdens without assistance, so that costs remained below those of the CCP-based learning center, the latter might still achieve greater cost-effectiveness. What matters is not just cost, but the cost per unit of learning output; and the evidence suggests that the learning center approach produces more learning output per hour and per dollar expended. Studies comparing programmed learning--the approach used in the CCP--with traditional group lecture instruction, uniformly show that learning is more rapid when instruction is individualized and self-paced, particularly for learners who are above- or below-average. As an example, the Job Corps program, which works with the most disadvantaged dropout youth, has averaged over 1.5 grade level gains in reading or math per 100 hours of individualized instruction, double the gain rate averaged by classroom-oriented Adult Basic Education and more than quadruple the gains previously achieved by Job Corpsmembers in regular schools. Computer-assisted instruction (CAI) further augments the effectiveness of the individualized approach according to most studies. In Job Corps, for instance, the provision of CAI during one-fifth to one-fourth of instructional hours as a supplement to regular print materials, raised learning rates between a sixth and a third, depending on the computer-type and intensity. Hence, a CCP-based learning center aims to average 1.5 to 2.0 grade gains over the first 100 hours of instruction in an academic subject, and between 1.0 and 1.5 over the second. Early evidence suggests that well operated CCP-based learning centers substantially exceed this target. However, even if the CCP prototype achieved at the low end of its potential, or 1.5 grade level gains per 100 instructional hours, while the traditional approach achieved the 1.0 grade level gain per 100 instructional hours which is the national goal for Adult Basic Education, the CCP-based learning center would cost a fourth less per grade gain produced than the regular classroom approach, even though each learning center instructional hour would cost a tenth more.

Cost-Effectiveness Factors

What makes the CCP cost-effective? There are a variety of factors:

1. The CCP, including its volumes of tests, activities, lesson assignments, plus its information, analysis and lesson assignment software, is made available to non-profit users at a fraction of its development and maintenance cost. The system was developed with public and private foundation resources to improve the quality and quantity of basic skills instruction. It incorporated the best of the Job Corps education program, the Career Intern Program prototyped by Opportunities Industrialization Centers of America, the Adult Performance Level system funded by the Department of Education, and experience-based learning activities developed under the Youth Employment and Demonstration Projects Act. The cost of these models was in the tens of millions of dollars. Direct development outlays for the CCP in purchasing and screening materials, preparing tests, selecting, structuring and creating supplementary activities, designing the information system, programming the software, and producing and editing the twenty volumes of tests, assignments and activities, represented an investment over three years of nearly \$.6 million. Another \$1.2 million was spent on testing the prototype in operational settings.

Any user trying to develop a similar system would probably also require the same time and expenditure. The same materials and software would have to be secured and screened, tests developed, a management information system programmed, tens of thousands of pages typed, duplicated, edited, retyped and reduplicated. It is obviously easier and cheaper to improve on the CCP framework than to develop a new one. Reinventing the wheel is an extremely costly undertaking.

Private foundations continue to support the replication, maintenance, improvement and evaluation of the CCP, with nearly \$1 million in annual grants which offset ongoing costs. Hence, users are charged a fee of only \$1,000 annually, enough to cover only a portion of the services they are provided directly such as newsletters, reviews and technical assistance, much less the indirect benefits they receive from continuing improvements. If all the development and ongoing maintenance costs were being recouped, and certainly if the CCP were being distributed on a profit basis, the cost of the system for each user would be in the tens of thousands of dollars each year, raising hourly instructional costs by 10 percent or more.

2. The instructional materials, including software, which are integrated into the CCP are relatively inexpensive considering their scope. They were selected by screening the best of commercial and public domain materials rather than developing new courseware, and this screening cost was less than development. In the screening process, price was a primary consideration, so most of the print materials selected were inexpensive booklets or kits. The CCP framework and its lesson assignment approach, particularly the automated variant, permits the referencing and use of materials already on hand, so that no unnecessary expenditures need be made by the user. The system is also completely modular, so that only those materials referenced for the sections actually in use need be acquired by the user.

The individualized approach, and the provision of instruction to a mix of learners at the same time, helps to economize on materials and costs. For instance, the CCP segment preparing for the General Educational Development (GED) test uses the 117 sequenced Job Corps booklets as core material. This inexpensive and reusable set covers all subjects tested by the GED. With two sets of booklets and some supplementary materials, it is possible to instruct 40 GED students at one time, since it will be rare when more than two learners need the same booklet at the same instant, and if so, there is always a supplementary assignment which can be substituted. In contrast, a specialized GED class large enough to justify a specialized teacher would need separate books for each student. A comprehensive GED book for each student might cost \$10-\$15, and with 40 required for a full class, the cost would be as much as \$500-\$600. The Job Corps GED sets are priced at only \$125, so if two were purchased, the cost would be less than half of regular textbooks. Moreover, the learning center can serve the GED students at the same time as other learners, so there is no need for specialized GED classes. If a mix of learners is served at all times, so that there will be just a few GED students to be instructed at any time, only one set of Job Corps GED booklets would be needed.

The same economies are realized in software use. At any given time, only one learner may be on a particular objective covered by a particular diskette, and if this is in use, the learner can always work on the core print assignment. A set of selected diskettes can, therefore, serve an entire class and cover a wide range of objectives, rather than requiring multiple copies of software for each objective covered.

3. Teachers concentrate on teaching. The primary expense factor in instruction is the teacher, so that technologies which increase teacher productivity have significant payoffs. The CCP frees the teacher to teach by largely eliminating daily lesson planning and test prepara-

tion, while automating individual education planning, student tracking, test checking and reporting. Aides can be effectively utilized for proctoring and maintenance tasks, and to increase personal contact, thus freeing instructors to teach. The CCP then provides them with the tools for more efficient and effective one-on-one instruction. The competency-based approach, the mastery tests and the information system permit an almost instant determination of each learner's progress and problems. The lesson assignment for each objective provides prescription choices, and the subsequent tests provide immediate feedback to guide these choices. In the learning center, therefore, the teacher can instantly determine the learner's needs and can easily select from a range of materials options, rather than spending precious moments of individual instruction in diagnosing needs and identifying possible prescriptions.

In the traditional classroom arrangement outlined previously, the average teacher/learner ratio was 1 to 15 (assuming 75 percent utilization). In the learning center, the teacher/learner ratio was 1 to 30, but the ratio of teachers or aides per learner was 1 to 10. The teacher time devoted to individual instruction in a regular classroom is typically less than 10 percent, while it is usually 75 percent or more in an individualized, self-paced instructional setting. To the degree the aides also help in instruction where they have a grasp of the subject, say 25 percent of their time, the minutes of individual instruction per learner are six times greater in the learning center than in the traditional classroom.

4. The effective use of computers is facilitated. Studies of computer uses in regular schools have documented that the terminals which are available are used for less than a third of school hours, and 85 percent of use is for computer literacy or computer science rather than basic skills instruction. Few school systems have the time or resources to survey, much less secure, all the software options. Only a minority of teachers use the computers which are available or have reviewed the software on hand to determine how it might fit their lesson plans. CAI is primarily an individualized instruction approach, and with the group/classroom organization of the traditional school, it is difficult to determine what student needs which lesson at which time. There are usually too few computers or too little software to integrate CAI in every classroom, so special labs must be oriented. Scheduling classes into the labs and then accessing the appropriate materials involves much downtime. Software for attendance, class scheduling, test-generation and even test-scoring is rarely used (although readily available and relatively inexpensive) because computers are usually in separate labs rather than integrated into the classrooms and easily accessible to teachers, and because it takes some effort to adapt tests and procedures to utilize the labor-saving possibilities of

computers. Because each teacher must separately adapt his or her procedures, and must independently explore and learn all the options, the amount of labor saved may be minimal even though the software itself, once utilized, can achieve significant efficiencies.

In marked contrast, the CCP-based learning center has an array of pre-selected software spanning a range of subjects. The instructor and learner know when a CAI lesson is available addressing the objective at hand. The lessons can be accessed quickly so they are just as easy to use as the core print or audiovisual materials. Assuming a reasonable variety of software and a reasonable number of terminals per learner, it is possible to achieve almost full use of hardware, since whenever a terminal is free, there is usually a learner beginning an assignment which references CAI as an option. Because the CCP works with varying intensities and mixes of hardware and software, it is possible to add CAI incrementally, and to try out various options without great risk, so that scarce resources are not wasted on mistakes.

Computers are used for instruction because of the evidence that up to a point, their substitution in the instructional mix adds to learning gain rates enough to justify their cost. Obviously they cannot add when they are not fully used. If the learning center increases use for basic skills instruction from 5 to 95 percent of instructional hours, and the computer bolsters learning by 50 percent for each hour of use, the gain from greater computer utilization in a CCP center vs. a regular classroom, both with 10 terminals, is a 15 percent increase in the grade gain rate.

The CCP system was designed and organized so that time-consuming tasks such as test-scoring and interpretation, recordkeeping, lesson assignment and evaluation could be automated using inexpensive microcomputers. The instructor does not have to adapt lesson plans and tests to accommodate computerization. And the manager or planner does not have to code data or develop and program evaluation routines. In a day or two, learning center staff can master the user-friendly techniques for the CCP Computerized Information, Analysis and Lesson Assignment Systems. With greater efficiency in these day-to-day tasks, which usually consume a large portion of staff time in tradition education, the teachers and aides in the learning center are freed for other tasks. To the degree students benefit from individual contact, they will learn faster when the teacher and aide are not doing paperwork.

5. Implementation and operational success rates are increased. Because the CCP has been simplified and standardized as much as possible, it can work without creative staff or ideal operating conditions. Technical

assistance is available from other practitioners to help avoid start-up problems. Users are networked to share information and assistance. If one site develops an exemplary supplementary activity, or a new unit, it can be quickly disseminated to others, so the developmental costs are shared. Regular monitoring and reporting assure that problems in the use of the system can be identified and corrected. Avoidance of all the implementation and use problems increases the time and resources which can be devoted to instruction. Because the CCP is standardized and distributed like a franchise, the user saves the effort and expense of developing and finetuning, as well as maintaining, a system.

6. Learner time-on-task is raised in CCP-based learning centers. According to educational research, a primary determinant of learning rates is "time-on-task"--the amount of time students are actually applying themselves to materials or tasks which are not already mastered, but not too difficult to master. Traditional classrooms average less than a third of class time "on-task," according to nationwide studies. Group instruction usually targets to the median student so that advanced and lagging learners either have already mastered or do not understand the material presented. Each interruption to discipline a student or answer a question disrupts the rest of the class, and such questions and disruptions are inevitable when a significant portion of learners are left behind or bored. In contrast, CCP learning centers can achieve 75 percent or more "time-on-task" because the tests place and track learners in appropriate assignments, because access to materials is simplified, because feedback on tests is instantaneous, because there is no incentive for malingering when completion depends only on mastery, and because teachers or aides are available when needed.

To the degree that learning per instructional hour is proportionate to applied learning time within each instructional hour, the greater time-on-task in a learning center would, alone, account for a doubling of traditional classroom gain rates. Put another way, the cost per applied learning hour in a learning center will be half of that in a traditional classroom even if the costs per attended hour are the same.

7. The CCP maximizes resource utilization so that teachers, aides, learning materials, computers and facilities are used more efficiently. Because the same center can serve different types of learners at the same time, it is possible to fill any excess capacity by adding individual learners or mixing less-than-class-size groups. The open-entry/open-exit nature of the system permits schedules of varying intensity and duration without the inflexibilities of class groupings. This permits access by learners who cannot participate on a regular basis. It also permits

"overbooking", i.e., scheduling up to surge capacity so that the average attendance will be maintained close to the maximum comfortable occupancy level. Schools usually remain open only 5 days a week and 7 hours a day because it is difficult to marginally utilize the schoolhouse, which is arranged for multiple grouped classes. A learning center, which can be sited almost anywhere it will be accessible to learners, can be more flexibly scheduled to meet whatever need exists; it could feasibly operate up to 80 hours weekly.

Using The Technology Cost-Effectively

All these features facilitate, but do not guarantee, cost-effective basic skills instruction. Like any production technology, the CCP is a system which must be installed and used properly if it is to yield its full payoffs. Some real-life examples, incorporated as assumptions in the cost calculations which follow, suggest the severe penalties from suboptimal implementation and operation (Table 2).

One danger is over-investment in equipment and materials. "More of a good thing" may not necessarily produce better learning results. Experience has shown that as the computer/learner ratio rises above 1/3 in a learning center, the use rate of the computer learning stations tends to decline significantly. There is also some research suggesting that computer-assisted instruction is more effective as a secondary supplement than as the primary instructional approach; indeed, the marginal learning benefits from CAI may actually decline after more than half of instructional time is on terminal. It is also possible to over-invest and overpay because of ignorance. Most teachers and program managers are novices in computer use, and frequently abandon comparative shopping strategies and common sense when buying what they perceive to be "high technology". They are easily convinced that they really need the extra peripheral, or memory, or audiovisual feature, which may have limited use in the learning center.

The cost estimates for an ineffective center assume a number of mistakes in computerization. Fascinated by the technology, the user overinvested in terminals, seeking one for every two learners at maximum capacity. The Apples were purchased off-the-shelf from a computer store without seeking available educational discounts. For the SONY micros, where courseware is encoded so it only plays on a specified machine, all courses were purchased for each micro, rather than having some courses for one machine and some for the other; while unneeded printers and second disk drives were also purchased. To provide options for voca-

Table 2. The Cost Consequences of Inefficient
CCP Implementation and Use

	<u>Start-Up Costs</u>	<u>Cost-Effective Center</u>	<u>Ineffective Center</u>
1. Technical Assistance		\$ 2,500	\$ 2,500
2. Apple micros (6 at \$850 in effective center; 9 at \$1,100 in ineffective center)		5,100	9,900
3. Scanner, printer, extra disk drives for information and analysis systems		1,800	1,800
4. Apple CAI software		2,000	2,500
5. SONY microcomputers (2 at \$3,700 each in effective center; 4 at \$3,700 each plus two printers and two extra disk drives in ineffective center)		7,400	16,400
6. CCC courses (5 courses total at \$400 each for effective center; 4 courses each machine for ineffective center)		2,000	6,400
7. Control Data Corporation/Texas Instruments Education Work Stations (5 at \$1,700 each including software for effective center; 8 CDC-110 terminals for ineffective center)		8,500	56,500
8. CCP-recommended print and audio-visual materials and audiovisual equipment (extra \$1,000 assumed in ineffective center due to rush orders)		11,500	12,500
9. CCP reproduction		1,200	1,200
10. Furnishings		4,000	4,000
11. Staff time for training and center establishment (two weeks in effective center and four weeks in ineffective center)		<u>4,000</u>	<u>8,000</u>
Total Start-Up		\$50,000	\$122,700
<u>Operating Costs</u>			
1. Staff (1½ full-time equivalent instructors and 3 full-time equivalent aides in effective center; 3 full-time equivalent instructors and 1 aide in ineffective center)		\$ 88,200	\$104,400
2. Rent		15,000	15,000
3. Leased copiers, telephones, supplies, repair and maintenance (assumes \$500 monthly for repair and maintenance of equipment in effective center; but \$750 in ineffective center because of more equipment)		12,000	15,000
4. Manager (half-time in both centers)		18,000	18,000
5. CCP Use Fee		<u>1,000</u>	<u>1,000</u>
Total Excluding Amortization		\$135,200	\$133,400
Amortization		<u>13,900</u>	<u>33,500</u>
Total Including Amortization		\$149,100	\$186,900

tional instruction, the user also purchased CDC-110 micros rather than less expensive CDC/TI Education Work Stations, even though both micros deliver the same PLATO software and even though the terminals were scheduled for full use in basic skills instruction leaving no time for vocational applications. The start-up costs also assume a delay in enrollment due to improper scheduling of equipment and materials purchases, with the materials prices raised by special delivery costs to meet unrealistic deadlines.

Since staff costs are the primary operating expense, any unnecessary or inappropriate staffing has a dramatic effect on the bottom line. There is a temptation to maintain existing staff even when adoption of the CCP permits and demands a different staff complement. The following cost estimates assume the user switched from a traditional classroom approach, retaining the three full-time equivalent instructors, but also hiring an aide to handle the greater volume of paperwork in an individualized system.

Increased enrollment could alleviate underutilization, but old habits are hard to break. For instance, many delivery agents contract on a "slot" basis--providing for some specified period of instruction, perhaps augmented by other services--at a fixed per-participant cost set to cover staff and other expenses, usually without considering capital costs. As elementary business and economics theory suggests, there is no incentive to achieve maximum efficiency when costs and returns are figured on an average rather than marginal basis when capital costs are ignored, and when the unit of accounting--slots as opposed to instructional hours--is so crude. Thus, the cost estimates assume that the user has retained the same funding sources, approaches and instructional scheduling as in the traditional activities replaced by the CCP--35 hours of weekly operation, with contracting for just enough slots to fill the center during those hours if all participants attended, but with a capacity utilization rate of only 65 percent because of the typically low attendance of remedial learners.

The learning center which made all these mistakes would look very much like the cost-effective prototype center. Indeed, it would have even more computers, as well as being able to provide more personal attention because of the larger staff and lower attendance. Learning gains might even be increased as a result (and a 10 percent increment is assumed over the prototype center's already impressive learning gain rates).

However, despite the appearance of success, the CCP site--which is overinvested, overstaffed and underutilized--is not only less cost-effective than the prototype learning center, but might also be less cost-effective than the well-run traditional education approach. The prototype center

delivered 75,000 attended instructional hours annually at a cost of \$2.00 per instructional hour. With two grade gains per 100 hours of instruction, its cost per unit grade gain was \$100. This compared to the \$1.80 cost per attended instructional hour in the well-run traditional education program, which averaged one grade gain per 100 hours, and a \$180 cost per unit of grade gain output. In contrast, the ineffectively implemented and operated CCP center would achieve only 45,500 attended annual hours, with a cost of over \$4.00 each. Even though it might achieve a formidable 2.2 grade-level gain per instructional hour, the cost per unit of grade gain output would be \$185--four-fifths above the hourly cost of an effectively-run learning center and even above the cost for an efficient classroom approach.

Thus, the CCP is not a panacea, but a tool. Investing in this tool makes sense only if it will be used frequently and correctly. With--but only with--appropriate investments in equipment and materials, efficient organization and layout, the right mix of adequately trained personnel, proper management and quality control, plus adequate "raw material" and markets to warrant full utilization, a "basic skills factory" applying the CCP-technology can achieve learning outputs at a fraction of their usual production cost and time, yielding a handsome rate of return on the investment.



COMPREHENSIVE COMPETENCIES PROGRAM

The Comprehensive Competencies Program A Business Approach to Social Programming

This section is under development.

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COMPREHENSIVE COMPETENCIES PROGRAM

The Comprehensive Competencies Program: Structure, Format and Use

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THE COMPREHENSIVE COMPETENCIES PROGRAM:
STRUCTURE, FORMAT AND USE

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August 1984

Rationale

Spanning both the academic and functional domains, covering the most basic to quite advanced competencies, and referencing written, audiovisual, as well as computerized materials, the Comprehensive Competencies Program is more diverse and inclusive than any other instructional system currently used in remediation and training programs. Service deliverers will most often need only a part of the system. They do not have the time or resources for extensive technical assistance in its use. Many practitioners lack training in curricula development, lesson planning, or computers. While most will have experience delivering either academic or functional instruction, few will have experience with both. In many settings, participants will have to use the system largely by themselves or under the supervision of an aide, so the mechanics must be easily understandable. For all these reasons, a standard and relatively simply nomenclature and organizational approach was adopted in the CCP and utilized consistently throughout, so that any segment can be used alone, but anyone understanding one segment will also understand use of all other segments.

There were several considerations in the design of the structure and format. One aim was to facilitate automation of recordkeeping and test scoring. Learners and/or teachers using individualized, self-paced instructional systems must spend a lot of time grading tests. The use of machine scorable tests forms and simple desk-top scanning machines enormously reduces this task. For this reason, all tests were developed in multiple choice and true-false format. A numerical coding system was also

utilized so that test scoring could be handled on-line, with direct data input to the management information system.

A second purpose was to design tests so that they could function for diagnosis and prescription and not just pass/fail determination, and so that this could be achieved in manual systems or with inexpensive microcomputers rather than complex computer-managed instruction systems. For this reason, questions in each test were sectioned to sequentially address the objectives at the next level of specificity in the CCP; for instance, with level test questions sectioned by the subsumed unit objectives addressed.

A third imperative was to facilitate updating of all elements of the system, particularly lesson assignments. The CCP is, most of all, a referencing framework. New courseware is constantly being developed or discovered. The organization had to accommodate modification of materials lists and assignment sheets at periodic intervals.

A fourth aim was to modularize the system so that any combination of units, levels, strands and components could be delivered to a given individual or in a particular project. The system had to function with only low-cost core materials, but had to facilitate upgrading of materials options, including incremental acquisition of computers and software.

A final goal was to provide a consistent framework which could be used for planning and tracking individual progress, for comparing performance of classes and projects, and for use in

performance contracting, so that administrators, deliverers, and learners would all be playing by the same set of rules.

The organization and nomenclature of the CCP is as consistent and simple as could be achieved consistent with these aims. Like any new vocabulary and syntax, it takes a little effort to learn; but once the CCP language and format is understood, it is possible for aides and paraprofessionals, or students, to run the system themselves so that instructors can focus their efforts on one-on-one instruction rather than proctoring and paperwork.

Schema

The CCP's organizational schema is suggested by the following matrix. The CCP is divided in two components: Component 1: ACADEMIC COMPETENCIES and Component 2: FUNCTIONAL COMPETENCIES. There are three curricula tiers in each component, labelled: Basic, Intermediate, and Advanced. The tier is referenced by the second digit in the number series identifier, following the numerical designation of the component. For instance, Tier 1.2: INTERMEDIATE is the second or intermediate tier in the first or academic component. Each tier in each component is divided into subject strands of related competencies arranged hierarchically from the simplest and instructionally precedent to the more complex. There are two strands in the first tiers of both components, three in both of the second tiers, and five in both of the third tiers. They are labelled by subject and referenced relative to tier and component by the

COMPREHENSIVE COMPETENCIES PROGRAM ORGANIZATIONAL MATRIX

ACADEMIC COMPETENCIES COMPONENT

TIER I. BASIC

Subject Strand 1. Basic Mathematics	Subject Strand 2. Reading Fundamentals
Level 1. Addition	Reading Readiness
Level 2. Subtraction	Elemental Reading Skills
Level 3. Multiplication	Foundation Reading Skills
Level 4. Division	Takeoff Reading Skills

TIER II. INTERMEDIATE

Subject Strand 1. Intermediate Mathematics	Subject Strand 2. Developmental Reading	Subject Strand 3. Specific Language Skills
Level 1. Fractions	Grade 5 Reading	Language Skills - 1
Level 2. Decimals	Grade 6 Reading	Language Skills - 2
Level 3. Measurement	Grade 7 Reading	Language Skills - 3
Level 4. Personal Math	Grade 8 Reading	Language Skills - 4

TIER III. ADVANCED

Subject Strand 1. Advanced Mathematics	Subject Strand 2. Reading and Humanities	Subject Strand 3. Writing	Subject Strand 4. Social Studies	Subject Strand 5. Science
Level 1. Primary CED	Primary CED	Primary CED	Primary CED	Primary CED
Level 2. Comprehensive CED	Comprehensive CED	Comprehensive CED	Comprehensive CED	Comprehensive CED
Level 3. Primary College Prep	Primary College Prep	Primary College Prep	Primary College Prep	Primary College Prep
Level 4. Comprehensive College Prep	Comprehensive College Prep	Comprehensive College Prep	Comprehensive College Prep	Comprehensive College Prep

FUNCTIONAL COMPETENCIES COMPONENT

TIER I. BASIC

Subject Strand 1. Basic Occupational Knowledge	Subject Strand 2. Coping Skills
Level 1. Career Choice	Independent Living
Level 2. Job Search	Money Management
Level 3. Job Getting	Food and Health
Level 4. Job Holding	Government and Community Resources

TIER II. INTERMEDIATE

Subject Strand 1. Intermediate Occupational Knowledge	Subject Strand 2. Intermediate Consumer Economics	Subject Strand 3. Life Skills
Level 1. Career Choice	Budgeting	Independent Living
Level 2. Job Search	Comparison Shopping	Family and Self
Level 3. Job Getting	Banking, Credit and Insurance	Community Resources
Level 4. Job Holding	Personal Possessions	Government and Law

TIER III. ADVANCED

Subject Strand 1. Advanced Occupational Knowledge	Subject Strand 2. Advanced Consumer Economics	Subject Strand 3. Government and Law	Subject Strand 4. Health	Subject Strand 5. Community Resources
Level 1. Career Choice	Budgeting and Managing Resources	Government Structure and Functions	Preventive Care and Maintenance	Information Sources
Level 2. Job Search	Comparison Shopping	Citizenship	Medical Care	Transportation
Level 3. Job Getting	Banking, Credit, Taxes and Insurance	Law	Self and Family	Community Services
Level 4. Job Holding	Possessions and Housing	Contracts and Documents	Forensics	Recreation Resources

third digit in the number series. For instance, Subject Strand 1.2.1: INTERMEDIATE MATHEMATICS is the first strand in the second tier of the academic component, obviously addressing intermediate mathematics competencies. Each subject strand in each tier is divided into four levels which are labelled, as well as being identified by the fourth digit in the number series. For instance, Level 1.2.1.4: PERSONAL MATH is the fourth level in the first strand of the second tier of the academic component; it covers everyday applications of mathematics skills. Each level of each strand is divided into units of closely related objectives and materials. Usually there are between three and five units in a level. Each unit is labelled as well as being identified by the fifth digit in the number series. For instance, Unit 1.2.1.4.1: CONSUMER MATH is the first unit in Level 1.2.1.4: PERSONAL MATH referenced above. Units are then divided into lessons which are "bite-sized chunks" of materials meeting very specific objectives. Usually there are three to five lessons per unit, each labelled as well as being identified by the sixth digit in the number series. An an example, the four lessons in the consumer math unit referenced above covers currency; it is numbered and labelled Lesson 1.2.1.4.1.4: MAKING CHANGE IN LARGER BILLS. Finally, activities provided to supplement lessons are identified by the seventh digit. There are few supplementary activities in the academic component except in mathematics, but an average of one for every four lessons (and sometimes as many as four for one lesson) in the functional component. The number system is illustrated by the following

references to supplementary activities, which include the complete number string:

Supplementary Activity 1.3.3.3.2.4.2: ESSAY PRACTICE 2

- Second supplementary activity for the lesson.
 - Activity label: Essay Practice
- Fourth lesson in unit.
 - Lesson label: Effective Essays
- Second unit in level.
 - Unit label: English Composition
- Third level in subject strand.
 - Level label: Primary College Prep
- Third subject strand in tier.
 - Subject strand label: Writing
- Third tier in component.
 - Tier label: Advanced
- First component in CCP.
 - Component label: Academic Competencies

Supplementary Activity 2.2.3.1.3.2.1: LOCAL BUS ROUTE MAPS

- First supplementary activity for lesson.
 - Activity label: Local Bus Route Maps
- Second lesson in unit.
 - Lesson label: Bus Route Maps
- Third unit in level.
 - Unit label: Transportation
- First level in subject strand.
 - Level label: Independent Living
- Third subject strand in tier.
 - Subject strand label: Life Skills
- Second tier in component.
 - Tier label: Intermediate
- Second component in CCP.
 - Component label: Functional Competencies

Although the number series is a little awkward, the advantage is that for any test that is machine scored, the identifiers can be coded directly onto the answer key, so that if the scanner used for scoring is hooked into a computer, the score can be recorded automatically for the individual. Not all users will want this capacity, but it can be extremely efficient. To simplify matters for other users, all tests, assignment sheets, and other elements of the CCP are headed by appropriate component, tier, subject strand, level, unit, and lesson labels. For instance, the headings for the supplementary activities used as examples on the previous page are shown on the next page. Also, the last digit of the number series--which is the really critical one for understanding where the element fits in context--is printed in bold face. Thus, after completing Lesson 1.3.3.3.2.3, it is clear to move on to the fourth lesson in the same unit, i.e., Lesson 1.3.3.3.2.4.

The Elements

The Comprehensive Competencies Program consists of a series of specified and structured objectives, lesson assignments, and supplementary activities to meet these objectives, plus related tests to assess mastery. These elements have standardized formats:

1. LEVEL AND UNIT OBJECTIVES MATRIX--This matrix, organized by subject strand labels and specifies the objectives of each level of the tier and each unit within each level.

SUPPLEMENTARY ACTIVITY

Component 1: Academic Competencies
Tier 1.3: Advanced
Subject Strand 1.3.3: Writing
Level 1.3.3.3: Primary College Prep
Unit 1.3.3.3.2: English Composition
Lesson 1.3.3.3.2.4: Effective Essays

Supplementary Activity 1.3.3.3.2.4.2: ESSAY PRACTICE 2

SUPPLEMENTARY ACTIVITY

Component 2: Functional Competencies
Tier 2.2: Intermediate
Subject Strand 2.2.3: Life Skills
Level 2.2.3.1: Independent Living
Unit 2.2.3.1.3: Transportation
Lesson 2.2.3.1.3.2: Bus Route Maps

Supplementary Activity 2.2.3.1.3.2.1: LOCAL BUS ROUTE MAPS

2. LESSON INDEX--This index, formatted by level within strands, lists and levels each lesson contained in the units subsumed by the level.

3. LESSON ASSIGNMENT--A separate lesson assignment form for each unit specifies the following for every lesson in that unit: Core Material recommended as most cost-effective in meeting the objectives; Supplementary Material including print, audiovisual and computer materials that provide instructional options which also cover the lesson objective; and Supplementary Activity references to print materials or CCP Supplementary Activity sheets which structure extra individual practice, group activities, or experience-based learning.

4. SUPPLEMENTARY ACTIVITIES--Supplementary Activity sheets describe and specify extra practice, group, or experience-based learning activities including the mastery checks or deliverables. Most of the supplementary activities are in the Functional Competencies component. It is expected that users will add their own activity sheets.

5. SUBJECT STRAND MASTERY TESTS--These tests cover all the objectives in the four levels of the strand. The questions are grouped by level so that the test can be used to determine specifically where further instruction is needed. They can be used as pre-tests and repeated as post-tests, in order to assess gain scores.

6. LEVEL MASTERY TESTS--For each level in the strand, there are two mastery tests that cover all the objectives in the units covered by the level. The questions are usually grouped by

unit so that the tests can be used to determine specifically which sets of competencies have not been mastered.

7. UNIT MASTERY TESTS--For each unit in each level of the strand, there are two mastery tests that cover all the objectives in the subsumed lessons. The questions are usually, but not always, categorized by lesson so that the tests can be used to pinpoint specific areas needing attention.

Two examples from strands in the academic and functional components, respectively, illustrate the consistency of the elements and their format:

The first example focuses on the intermediate academic component, which is divided into three subject strands with four levels each. The third subject strand is Specific Language Skills, as demarcated on the CCP organizational matrix. (Sample 1.) For the Specific Language Skills strand, as for all other subject strands, there is a Level and Unit Objectives Matrix. (Sample 2.) For each of the four levels of the subject strand, a separate Lesson Index references by number and label the lessons in each unit within the level. (Sample 3.) Separating each unit, there is a set of lesson assignments, as exemplified by the Lesson Assignment sheet for Unit 1.2.3.3.2: DICTIONARIES AND CARD CATALOGS. (Sample 4.) The lessons in this unit all include a "Core Material" as well as "Supplementary Material." As exemplified by Lesson 1.2.3.3.2.2: CARD CATALOGS, the supplementary material may include lessons available on several different computer systems; in this example, possible supplementary materials include on-line PLATO lessons from the University of Illinois, as well as Computer Curriculum Corpora-

tion lessons available on the SONY microcomputer and a range of Apple lessons. Audiovisual and recorded lessons may also be identified as supplements, but are not in the present example.

After the Tier Locator Test determines that an individual should be placed in the intermediate tier, the Subject Strand Mastery Test for Specific Language Skills can be used to place an individual in the appropriate level within the tier and strand, or to assess mastery after completion of all units and lessons within the strand. In the academic tier, nationally-normed tests measure strand mastery, and these are not sectioned by level. However, these can be followed by one of the two forms of the Level Mastery Test, in this case covering the level in which the sample unit and lesson is contained, is presented. The question items are organized by lesson in order to help pinpoint before and/or after instruction where there are specific deficiencies. (Sample 5.) Finally, a unit test is presented for the sample Unit 1.2.3.3.2 included previously. The test groups questions according to the lesson in which the related competencies are addressed. (Sample 6.) The answer keys for the tests are organized by type of test and maintained separately in both typed and machine scorable forms, as exemplified by the answer keys for the level and unit tests. (Sample 7.)

The second example focuses on the intermediate functional component, which is (like the intermediate academic component) divided into three subject strands with four levels each. The first subject strand is Intermediate Occupational Knowledge, as demarcated on the CCP Matrix. (Sample 1.) Consistent with the

example for the academic component, there is a Level and Unit Objectives Matrix for this strand and tier. (Sample 8.) There is also a Lesson Index for each level identifying the lessons contained in the units in the level, as exemplified for Level 2.2.1.2: JOB SEARCH. (Sample 9.) Likewise, for each unit, there is a separate set of Lesson Assignments, as exemplified by the Lesson Assignment lists for Unit 2.2.1.2.2: JOB SOURCES. (Sample 10. Includes assignments for first lesson only.) In this case, the first Lesson Assignment includes a reference to five Supplementary Activities, including Supplementary Activity 2.2.1.2.2.1.1: EMPLOYMENT AGENCIES 1, which provides individual drill and practice. (Sample 11.) Other Supplementary Activity sheets detail experience-based learning activities outside the classroom or group classroom activities. Paralleling the academic component, the Occupational Knowledge Subject Strand Mastery Test clusters question items by level. (Sample 12.) The level tests, as exemplified by Level 2.2.1.2.1: MASTERY TEST 1, identify the questions by unit. (Sample 13.) The unit tests, as exemplified by Unit 2.2.1.2.2: MASTERY TEST 1 have item responses segmented by lesson. (Sample 14.) Finally, the answer keys are provided in written and machine-scorable form. (Sample 15.)

Movement Through the CCP

The almost limitless options in the use of the CCP are suggested by a few case studies referenced to these sample forms:

1. Carl Jackson, a high school dropout, wants to secure a GED and enters a learning center that provides instruction covering intermediate and advanced academic competencies. The center is extremely well-equipped, not only having a full range of audiovisual equipment and courseware, but also hooked into the University of Illinois on-line PLATO system, with four terminals serving small classes of approximately twenty students who participate in four-hour shifts. The initial Academic Competencies Tier Locator Test determines that Carl's math capabilities are fine, but his reading is not good enough to enter the GED-level studies provided in the first and second levels of the CCP's Tier III Academic Competencies component. Based on the Locator Test results, Carl is then given the Specific Language Skills and the Developmental Reading Subject Strand Mastery Tests (which are scored in a few seconds), determining that Carl's abilities are approximately at Level 3 in both intermediate tier strands. The Developmental Reading strand units consist of a specified number (usually ten) of reading exercises selected from an assortment of graded readings covering five broad topic areas. Each reading includes questions which address appropriately levelled comprehension, vocabulary, spelling, and usage aspects of the reading passage. The units in each level of the Specific Language Skills subject strand address, in turn, comprehension, vocabulary, grammar, and practical skills objectives, with the more complicated competencies in each of these domains addressed at the higher levels. Thus, the Developmental Reading subject strand is

designed to teach a "smorgasborg" of skills through repeated practice in selected readings, while the Specific Language Skills subject strand targets on selected competencies through more structured exercises.

The teacher, thus, has several options to help Carl with his reading and language skills. He could be assigned to both the Developmental Reading and the Specific Language Skills strands, with the number of required readings reduced in each Developmental Reading unit, recognizing that some of the same skills are being addressed in the Specific Language Skills units. Alternatively, the teacher could assign Carl primarily to the Developmental Reading strand. After mastering a level in this strand, he could be given the mastery test for the corresponding level in Specific Language skills, completing only the units where remediation is needed because the appropriate skills were not picked up in the developmental readings.

In Carl's case, however, the teacher decides that getting him into the GED program as quickly as possible is crucial, since he might otherwise drop out of the program. General reading skills can later be improved by reading the GED materials, so Carl is assigned solely to the Specific Language Skills subject strand. To avoid any unnecessary instruction which would delay GED entry, the teacher gives Carl the short Unit 1.2.3.3.1 Mastery Test before assigning him to the first unit of the third level. Carl does well and so skips the first unit and saves time. But he is unable to pass the form of the Unit 1.2.3.3.2 Mastery Test which he is given next. Most of his errors are on

the questions relating to the use of card catalogs. Carl, therefore, is told to begin with Lesson 1.2.3.3.2.2: CARD CATALOGS.

To get Carl acclimated to the system, the teacher walks him over to the file of lesson assignments. Together they find the appropriate Lesson Assignment sheet and identify the core material which is recommended. They then move to the bookshelf of materials for the intermediate academic component, securing Booklet #16 of Individualized Reading Skills -- C Series. (For future lessons, Carl will be able to repeat this process by himself, finding the appropriate lesson and locating the core material.) After working 30 minutes, Carl has completed this material, which includes some exercises he answers correctly on a sheet of scratch paper. Normally, he would then take the Unit Mastery Test, since he has completed the last lesson in the unit after "testing through" the other lesson(s). But to expose Carl to the PLATO system, and to assure that he really has grasped the skills necessary for the first lesson's objectives on dictionary use, which he skipped, the teacher sits Carl at the terminal and shows him how to select the computer lesson on "Words in Alphabetical Order." Carl enjoys this exercise and is excited by his ability to use the computer. He tells the teacher he would like to spend more time on PLATO rather than written materials, but she explains that only some of the objectives are addressed by PLATO lessons, and that each student will spend only one-fifth of his time on the terminal, with the remainder on written materials. He learns that the center has ordered a SONY micro-computer which uses the Computer Curriculum Corporation software,

and that when it arrives and adds a fifth terminal, students will spend a fourth of class time on computers.

After this orientation, Carl proceeds on his own through his assigned strand in the CCP, working from the Lesson Index. Completing all the lessons in a unit, he takes one of the two short unit mastery tests. When he passes, he then takes one form of the mastery test for the next unit in order to determine whether some of the lessons can be skipped, just like he was able to skip the first lesson in the Unit 1.2.3.3.2. The teacher suggests when students should work on terminal; so that these relatively expensive learning aids are used every available minute, while students are actively learning the rest of the time on paper and pencil lessons.

2. Michelle Garvin is also a high school dropout, but her math capabilities are even more limited than her reading capabilities (which are at roughly the same level as Carl's). Indeed, Michelle is placed in the basic academic component at the third level of the Mathematics subject strand. To get her up to GED entry level will take some time, but since she is living at home and already has a part-time job, the counselor believes that she is a good bet to complete. Hence, she is assigned a concentration of three hours daily math instruction, with one hour of additional work on Specific Language Skills or Developmental Reading on alternate days. In her math class, she is assigned half-time on computers in order to accelerate learning, with three ten-minute daily sessions on the individualized drill and practice of the Computer Curriculum Corporation math program, and an hour on the more tutorial PLATO lessons, which are

selected from a menu once she "signs on" the terminal. With the extensive use of computer-assisted instruction, the teacher anticipates that in three months Michelle can be brought up to GED entry level in math. She should also be able to complete all the Developmental Reading and Specific Language Skills intermediate levels at about the same time.

Because of the multiplicity of detailed objectives in the CCP and the diversity of student competencies, it is extremely unlikely that two students will ever address the same lesson at exactly the same moment. This is why so many students can operate from the set of core materials. But for illustration, assume that Michelle and Carl are in the same class and bump into each other as they seek to locate the assignment for Lesson 1.2.3.3.2.2: CARD CATALOGS. It is possible for either one to skip ahead to the next unit and then to return later to complete the work on card catalogs. The units in each level of the Specific Language Skills strand are not hierarchical; i.e., they can be completed in any order (as opposed to the math strands where the sequence is more often fixed). But both can complete the lesson at the same time if they want. If a computer is available, one can use the core print assignment and the other can use the supplementary computer-assisted assignment. If no computer is available, either one of the two supplementary print materials will be available (since they are core material of other lessons) and can be substituted.

3. Marsha Banks is enrolled in a word processing course. She does fine on the straight typing, but has a lot of difficulty handling the editorial change exercises on the word processor. The vocational instructor suspects that Marsha may have some weaknesses in language skills even though she graduated with a B+ average in English from the local high school. The vocational instructor does not have expertise in remedial education, and consults her friend Judy, who is an instructor at the learning center where Carl and Michelle are enrolled. Judy lends some tests for diagnosing Marsha's skills--the Academic Competencies Tier Locator Test, the Developmental Reading and Specific Language Skills Subject Strand Mastery Tests, and the GED practice test. The first three tests reveal that Marsha has the same deficiencies as Carl and Michelle--her language skills and reading are intermediate, though she will need mastery of GED level skills in reading and writing if she is going to succeed as a word processor.

Marsha cannot easily attend the learning center, which is on the other side of town from her home and from the word processing center. She could not enroll full-time, since the Jobs Training Partnership Act funding financing her training limits participation to six months, and it takes that long to complete the word processing course. Judy, therefore, suggests to Marsha's vocational instructor that the word processing center acquire some materials for remediation in cases like Marsha's, that the core print materials for language skills, reading, and writing in the intermediate and advanced components would cost only a few

hundred dollars and could be used over and over, and that because of their individualized, self-paced instructional approach, they would not require a lot of teacher intervention.

To meet immediate needs, Judy indicates that because group instruction is scheduled every Wednesday afternoon at the learning center, the computers are available at that time for use by word processing students. She also has extra sets of GED materials, as well as a full array of supplementary materials for the intermediate component, so she lends these to Marsha's vocational instructor who places them in an unused corner of the vocational facility. Judy helps in setting up a learning plan detailing the lessons to be covered by Marsha, and in a few minutes shows both Marsha and her vocational instructor how the system works. Marsha begins with the first units in the third level of the Specific Language Skills and Developmental Reading strands, working on her own for an hour before and an hour after her word processing class. She commutes on Wednesday afternoons to the learning center, completing the best computer lessons which Judy has identified from the supplements for the lessons Marsha is covering each week.

Marsha likes the computer and feels it accelerates her learning, but she is also making good progress with the paper and pencil lessons alone. Since it is an hour and a half each way by bus to get to the learning center, she feels her time is better spent working extra at the word processing center without the assistance of computer instruction. But because of Marsha's success, the vocational instructor decides to give academic screening tests to others who are having problems in word

processing. She finds that almost a third of the class of high school graduates has deficiencies so severe that they will hinder future success in this career, even if the technical skills can be mastered. These trainees are all assigned to different levels of the written material that Judy has provided. Recognizing their needs, the instructor, therefore, talks to the sales representative for the word processing equipment, arranging for the purchase of personal computers that can deliver computer-assisted instruction in basic skills while providing exposure to microcomputer word processing packages. At very little cost, she is able to enhance vocational instruction and achieve much higher completion and placement rates, while serving some individuals whom she might otherwise have had to reject.

4. Marie Clark has just graduated from high school, but her reading and computation abilities are far below high school graduate norms. She had planned to go to college, finding out too late that her skills were inadequate. She, therefore, has no choice but to find a job. With no work experience, except for some babysitting, she does not know what to do. She, therefore, enters a summer transition program operated by the school district for school leavers. It concentrates on getting young people into appropriate career tracks. But it also has the full academic and functional component available for use by those students with special needs, since the facility also serves as a remedial work-education center during the school year. It has the entire CCP core materials and many supplements including CAI delivered on APPLE IIe and CDC microcomputers.

On entrance into the program, Marie was given the short Tier Locator Test which indicated that despite her diploma, her reading skills were at the intermediate level--an all too frequent reality in some of our urban school systems. Marie was, therefore, slotted in the intermediate tier of the Occupational Knowledge strand. Her next step, the same day, was to take the Subject Strand Mastery Test for Occupational Knowledge. Her aggregate score was only 60 percent correct, with her highest score in the Job Holding Segment where she still scored only 75 percent. It was, therefore, determined that she should complete the entire Occupational Knowledge strand, without skipping any levels. This was written in an individual plan based on the unit objectives for the subject strand.

Marie began with the first lesson in the first unit of the first level. On conclusion of each lesson, she completed the lesson mastery test contained in the assigned core material, scoring the answers herself. Completing the lessons in the unit, she then took a unit mastery test on a machine scorable form (since this project had "scanners" for automated test scoring). After finishing the test, and finding the appropriate answer key, she scored her test by running it and the key through the machine. Where she answered 8 of the 10 unit questions correctly, the teacher recorded unit completion and advanced her to the first lesson of the next unit. A few times she failed and had to complete a supplementary material for a lesson. But she soon completed all units in the first level of the subject strand and took the level test, requiring 16 of 20 correct answers for movement to the next level. She passed with all answers correct,

but more importantly, had achieved a far better sense of what jobs were available in the labor market, their requirements and rewards, her own interests and aptitudes, and possible careers best suited to her needs. Having learned about career options, she is now entering the next level, which seeks to teach her how to find the job she wants and for which she is qualified.

She completes Unit 2.2.1.2.1: GETTING STARTED, including the Supplementary Activity of securing a social security card. Next comes Unit 2.2.1.2.2: JOB SOURCES. Following a now familiar routine, she walks over to the file of Lesson Assignment forms, securing the assignments for Lesson 2.2.1.2.2.1: COMMON JOB SOURCES. The core material includes a film and seven pages of print material drawn from two different booklets. But at the time Marie begins the lesson, the Apple IIe computer is not being used, so Marie follows the established classroom procedure of using the computer-assisted instruction lesson whenever a terminal is vacant. The computer lesson is in a box of labelled discs, so she selects the appropriate one and completes the lesson in twenty minutes, demonstrating adequate mastery on the questions contained in the lesson. The teacher has said that is often worthwhile to complete some print materials along with computer-assisted lessons, so Marie finishes the two Supplementary Activity sheets on EMPLOYMENT AGENCIES, which take about five minutes each. Marie checks these herself. After completing the other three lessons in the unit, she then gets the Unit 2.2.1.2.2 Mastery Test 1. Unfortunately, she does not have 80 percent mastery, missing the questions related to the lesson

on COMMON JOB SOURCES, perhaps because she was rushing too fast to finish the material. In this case, she could either complete the core or the supplementary material, as well as their lesson mastery tests. She could then take Unit 2.2.1.2.2 Mastery Test 2, or the teacher could move her directly to Unit 2.2.1.2.3 upon completion of the remediation.

5. Barry Argento is an enrollee in the same program. He is a dropout who has held a lot of dead-end jobs. To escape the secondary labor market, he needs a high school equivalency, but the Tier Locator Test, followed by the intermediate subject strand mastery tests, indicate that his language and reading levels are a little low for GED entry. But Barry has bad memories of his last years in school when he could not keep up with his friends, so he is reluctant to enter an academic program. The counselor, therefore, decides that the best approach might be to disguise the medicine a little by combining functional and academic instruction. Barry is given the Occupational Knowledge Subject Strand Mastery Test. He does well on the questions related to Job Search, Job Getting, and Job Holding because he has a lot of work experience, but he does poorly on the Career Choice questions. Barry's individual plan, then, calls for enrollment two hours a day in level three, Specific Language Skills, and enrollment two hours a day in the first level, Career Choice, of the intermediate functional competencies component.

The plan proves to be a wise one. Barry learns from the Career Choice materials that his options are extremely limited without a diploma. At the same time, he learns that the academic

instruction is nothing like a regular classroom. Indeed, he easily completes the Specific Language Skills strand, which bolsters his self-esteem and makes him certain he can complete the GED. He therefore enrolls full-time in the academic component after completing just one level of the Occupational Knowledge Subject Strand.

6. As a last example, Billy Taylor had the same problems as Barry and was given the same prescription. But after completing Level 2.2.1.1: CAREER CHOICE quickly and easily, while struggling with Level 2.2.3.3: SPECIFIC LANGUAGE SKILLS - 3, he expressed an interest in pursuing a competency-based high school diploma rather than a GED. The project is located in a state which awards competency-based high school diplomas; completion of the advanced tier of the functional component and a "Level III" score on the Adult Performance Level test provides the basis for awarding a diploma. Responding to this interest, the teacher gave Billy the subject strand mastery tests for intermediate consumer economics and life skills. Because both scores were close to the passing level, which is the minimum for mastering advanced functional competencies materials, and because his enthusiasm was so great, the teacher decided to take a chance and place him in the advanced tier.

Billy begins with the Tier Mastery Test for the advanced functional component (which is the same as the Adult Performance Level survey). This is used to determine the specific strands where he should concentrate. He does well on the questions related to Occupational Knowledge (probably because of the

instruction already completed in the intermediate tier). He is, therefore, given the subject strand mastery tests in the other four domains: consumer economics, government and law, health, and community resources. He is placed in different levels in each of these strands, moving through them in exactly the same way he learned in the intermediate tier Occupational Knowledge strand. When he completes, he will be given the Tier Mastery Test again. If he passes, he will be interviewed by a certification agent of the schoolboard who will review his record and, assuming all is in order, will grant a high school diploma. Although the functional competencies approach may take a little longer than the GED, Billy feels it is worthwhile because he enjoys the functional material and the practical competencies he is learning, and because he would rather have a diploma than a certificate.

If a project or program had all of the core materials in the two components of the CCP, it could serve Carl, Michelle, Marsha, Barry, Marie, and Billy at the same time in the same classroom, with each pursuing his or her individualized competency program, with all being assessed by the same standards and perhaps sharing the same instructor and/or aide. Based on performance in the system, their individual plans could be revised periodically, just like Billy's, Marsha's and Barry's, to reflect their interests, aptitudes, and needs as expressed in their performance. They could use computers if they were available, but could master all instructional objectives simply through the use of print and audiovisual materials. They might be using only a small part of the CCP, several different parts, or whole tiers.

Likewise, the instruction might be part of a work or vocational training program, or a self-standing activity. It could be taught in school, during the summer, or year-round in learning centers. The delivery agent might have all or any part of the materials and assignments. Yet the same structure and format would prevail in all cases, so that the parts could be pieced together to respond to individual and project level needs.

FUNCTIONAL COMPETENCIES COMPONENT

TIER I. BASIC

Subject Strand 1. Basic Occupational Knowledge	Subject Strand 2. Coping Skills
Level 1. Career Choice	Independent Living
Level 2. Job Search	Money Management
Level 3. Job Getting	Food and Health
Level 4. Job Holding	Government and Community Resources

TIER II. INTERMEDIATE

Subject Strand 1. Intermediate Occupational Knowledge	Subject Strand 2. Intermediate Consumer Economics	Subject Strand 3. Life Skills
Level 1. Career Choice	Budgeting	Independent Living
Level 2. Job Search	Comparison Shopping	Family and Self
Level 3. Job Getting	Banking, Credit and Insurance	Community Resources
Level 4. Job Holding	Personal Possessions	Government and Law

TIER III. ADVANCED

Subject Strand 1. Advanced Occupational Knowledge	Subject Strand 2. Advanced Consumer Economics	Subject Strand 3. Government and Law	Subject Strand 4. Health	Subject Strand 5. Community Resources
Level 1. Career Choice	Budgeting and Managing Resources	Government Structure and Functions	Preventive Care and Maintenance	Information Sources
Level 2. Job Search	Comparison Shopping	Citizenship	Medical Care	Transportation
Level 3. Job Getting	Banking, Credit, Taxes and Insurance	Law	Self and Family	Community Services
Level 4. Job Holding	Possessions and Housing	Contracts and Documents	Parenting	Recreation Resources

SAMPLE 1.

COMPREHENSIVE COMPETENCIES PROGRAM ORGANIZATIONAL MATRIX

ACADEMIC COMPETENCIES COMPONENT

TIER I. BASIC

Subject Strand 1. Basic Mathematics	Subject Strand 2. Reading Fundamentals
Level 1. Addition	Reading Readiness
Level 2. Subtraction	Elemental Reading Skills
Level 3. Multiplication	Foundation Reading Skills
Level 4. Division	Takeoff Reading Skills

TIER II. INTERMEDIATE

Subject Strand 1. Intermediate Mathematics	Subject Strand 2. Developmental Reading	Subject Strand 3. Specific Language Skills
Level 1. Fractions	Grade 5 Reading	Language Skills - 1
Level 2. Decimals	Grade 6 Reading	Language Skills - 2
Level 3. Measurement	Grade 7 Reading	Language Skills - 3
Level 4. Personal Math	Grade 8 Reading	Language Skills - 4

TIER III. ADVANCED

Subject Strand 1. Advanced Mathematics	Subject Strand 2. Reading and Humanities	Subject Strand 3. Writing	Subject Strand 4. Social Studies	Subject Strand 5. Science
Level 1. Primary CED	Primary CED	Primary CED	Primary CED	Primary CED
Level 2. Comprehensive CED	Comprehensive CED	Comprehensive CED	Comprehensive CED	Comprehensive CED
Level 3. Primary College Prep	Primary College Prep	Primary College Prep	Primary College Prep	Primary College Prep
Level 4. Comprehensive College Prep	Comprehensive College Prep	Comprehensive College Prep	Comprehensive College Prep	Comprehensive College Prep

LEVEL AND UNIT OBJECTIVES MATRIX

Component 1: Academic Competencies

Tier 1.2: Intermediate

Subject Strand 1.2.3: Specific Language Skills

Level 1.2.3.1: LANGUAGE SKILLS-1. Demonstrate ability to identify simple sentence structures and directional materials. Discriminate between words related by sound and meaning. Use common punctuation.

Unit 1.2.3.1.1: SIMPLE SENTENCE ELEMENTS. Read simple sentences and identify the main elements of their structure.

Unit 1.2.3.1.2: SIGNS, LABELS, AND MAPS. Read and interpret simple signs, labels, and maps.

Unit 1.2.3.1.3: HOMONYMS, SYNONYMS, AND ANTONYMS. Discriminate between words related by sound (homonyms) or meaning (synonyms/antonyms).

Unit 1.2.3.1.4: BASIC PUNCTUATION. Use end punctuation, commas, and quotation marks correctly in given sentences.

Level 1.2.3.2: LANGUAGE SKILLS-2. Demonstrate ability to read paragraphs and specialized formats (schedules, directories, and classified ads). Apply spelling rules. Use abbreviations. Complete simple information forms.

Unit 1.2.3.2.1: PARAGRAPH STRUCTURE. Use elements of paragraph structure (main idea and supporting details) to determine meaning.

Unit 1.2.3.2.2: SCHEDULES, DIRECTORIES, AND CLASSIFIED ADS. Read and interpret the specialized formats used in schedules, directories and classified ads.

Unit 1.2.3.2.3: SPELLING RULES AND ABBREVIATIONS. Apply spelling rules and abbreviate common names and titles.

Unit 1.2.3.2.4: FORMS COMPLETION. Complete personal information forms correctly.

Level 1.2.3.3: LANGUAGE SKILLS-3. Read context to determine word meaning and time sequence. Locate information in dictionaries and card catalogs. Use apostrophes correctly in possessive forms and contractions. Write short paragraphs.

Level and Unit Objectives Matrix
Continued

- Unit 1.2.3.3.1: MEANING IN CONTEXT. Read sentence and paragraph contexts to determine meaning.
- Unit 1.2.3.3.2: DICTIONARIES AND CARD CATALOGS. Read dictionaries and use card catalogs to locate information.
- Unit 1.2.3.3.3: PLURALS, POSSESSIVES, AND CONTRACTIONS. Form plural and possessive noun forms and pronoun-verb contractions.
- Unit 1.2.3.3.4: WRITING SIMPLE PARAGRAPHS. Write a paragraph of at least five sentences with topic sentence and supporting details.
- Level 1.2.3.4: LANGUAGE SKILLS-4. Demonstrate ability to determine cause and effect and logical outcomes from context. Read and interpret graphic displays. Identify root words and their prefixes and suffixes. Write a personal letter and a business letter in correct format.
- Unit 1.2.3.4.1: CAUSE/EFFECT AND INFERENCE. Define and identify cause and effect, and logical outcomes from context.
- Unit 1.2.3.4.2: DIAGRAMS, CHARTS, AND GRAPHS. Read and interpret diagrams, graphs and charts.
- Unit 1.2.3.4.3: ROOT WORDS, PREFIXES, AND SUFFIXES. Identify the meanings of prefixes and suffixes in relation to root words.
- Unit 1.2.3.4.4: PERSONAL AND BUSINESS LETTERS. Write a personal letter and a business letter in correct format.
- Unit 1.2.3.4.5: TEST-TAKING AND SELF-ASSESSMENT SKILLS. Identify and demonstrate techniques for mastering ready test questions. Self-assess mastery of specific language skills.

LESSON INDEX

Component 1: Academic Competencies
Tier 1.2: Intermediate
Subject Strand 1.2.3: Specific Language Skills
Level 1.2.3.3: Language Skills-3

Unit 1.2.3.3.1: MEANING IN CONTEXT

Lesson 1.2.3.3.1.1: WORD MEANING IN CONTEXT
Lesson 1.2.3.3.1.1: IDENTIFYING TIME SEQUENCES

Unit 1.2.3.3.2: DICTIONARIES AND CARD CATALOGS

Lesson 1.2.3.3.2.1: DICTIONARY USE
Lesson 1.2.3.3.2.2: CARD CATALOGS

Unit 1.2.3.3.3: PLURALS, POSSESSIVES, AND CONTRACTIONS

Lesson 1.2.3.3.3.1: PLURAL NOUNS
Lesson 1.2.3.3.3.2: POSSESSIVE NOUNS
Lesson 1.2.3.3.3.3: CONTRACTIONS

Unit 1.2.3.3.4: WRITING SIMPLE PARAGRAPHS

Lesson 1.2.3.3.4.1: OUTLINES AND NOTES

LESSON ASSIGNMENT

Component 1: Academic Competencies

Tier 1.2: Intermediate

Subject Strand 1.2.3: Specific Language Skills

Level 1.2.3.3: Language Skills-3

Unit 1.2.3.3.2: Dictionaries and Card
Catalogs

Lesson 1.2.3.3.2.1: DICTIONARY USE. Use the dictionary to define and pronounce words.

Core Material:

1. Houghton Mifflin Company
Individualized Reading Skills
Program-B: Using a Dictionary
for Pronunciation Booklet 3
2. Houghton Mifflin Company
Individualized Reading Skills
Program-C:
Using a Dictionary for
Pronunciation Booklet 1
Using a Dictionary to
Get Meaning Booklet 10

Supplementary Material:

Print:

1. Houghton Mifflin Company
Individualized Reading Skills
Program-A:
Using a Dictionary for
Pronunciation Booklet 5
Using a Dictionary to Get
Meaning Booklet 17
Using Words In a Dictionary Booklet 23
2. Houghton Mifflin Company
Individualized Reading Skills
Program-B:
Using a Dictionary to Get
Meaning Booklet 12

3. Reader's Digest Service, Inc.
Reader's Workshop II
Using the Dictionary Card 9d
Using the Dictionary Card 10d
Using the Dictionary Card 11d
Using the Dictionary Card 12d
Using the Dictionary Card 13d
Using the Dictionary Card 14d
Using the Dictionary Card 15d
4. Cambridge Book Company pp. 133-145
Reading Competence
5. Cambridge Book Company pp. 99-102
Reading Improvement
6. Cambridge Book Company p. 150
Reading Performance
7. Cambridge Book Company p. 81
Reading Achievement
8. McGraw-Hill Book Company pp. 73,99,101,153
Continuing Language Skills
9. McGraw-Hill Book Company pp. 23-24,37,70,119
Directing Language Skills

Computer:

1. Computer Curriculum Corporation Sony microcomputer,
(CCC) or CCC minicomputer,
Survival Skills - Information CCP#S7
Sources: Module IS
The Dictionary and the Lesson 3
Encyclopedia
2. University of Illinois UofI/CERL
PLATO on-line
Words in Alphabetical Order (dv114a)
Dictionary Skills (diction)

Lesson 1.2.3.3.2.2: CARD CATALOGS. Use a card catalog to locate information.

Core Material:

1. Houghton Mifflin Company Booklet 16
Individualized Reading Skills
Program-C: Using a Card Catalog

LEVEL MASTERY TEST

Component 1: Academic Competencies

Tier 1.2: Intermediate

Subject Strand 1.2.3: Specific Language Skills

Level 1.2.3.3: Language Skills-3

Level 1.2.3.3: MASTERY TEST 1

Directions: Questions 1-5 refer to the following paragraph. On your answer sheet, write the letter for the word which is closest in meaning of each to the underlined words.

The President sent the bill to Congress, but they did not treat it well. They thought it offered only token funds. It also had a rider on it that some people thought showed collusion with certain big industries.

1. bill

- A) price
- B) money
- C) possible law
- D) cost

2. treat

- A) handle
- B) gift
- C) follow
- D) applaud

3. token

- A) coin
- B) illegal
- C) false
- D) inadequate

4. rider

- A) passenger
- B) addition
- C) steerer
- D) seat

5. collusion

- A) crash
- B) secret agreement
- C) profit
- D) sales

Directions: For questions 6-10, read the following paragraph carefully. Remember the sequence in which things are to be done.

Here's how to use your portable stereo tape player. First, unscrew the cover on the back of the player and lift it off. Insert two AA batteries. Screw the cover back on. Open the lid and slide a stereo tape into the grooves. Snap the lid shut so that the latch closes tightly. Plug the end of the earphone cord into socket B. Put the earphones on your head. Press the PLAY button to hear the tape.

Now read the paragraph again. When you are ready, turn the page and answer the questions. Do not turn back to this page. Write the correct answer on your answer sheet.

6. You should open the lid after you have:
 - A) plugged in the earphone cord
 - B) slid the tape into the grooves
 - C) unscrewed the cover
 - D) put batteries in and screwed the cover on
7. The latch should close tightly when you:
 - A) snap the lid shut
 - B) screw it on
 - C) plug in the earphone cord
 - D) slide the tape in
8. Press the PLAY button:
 - A) to test it before you put the batteries in
 - B) to test it before you put the tape in
 - C) after the lid is open
 - D) after you do all the other steps
9. Slide the tape into the grooves:
 - A) while snapping the lid closed
 - B) after the back cover is opened
 - C) after the lid is opened
 - D) after plugging in the earphone cord
10. Put in the batteries:
 - A) while the lid is open
 - B) while the cover is off
 - C) after unscrewing the lid
 - D) only if the tape is in

- easy (ě - zě) adj. 1. Not difficult to do or understand. 2. Free from worry or anxiety. 3. Relaxing; easy-going
- eat (ěat) v. 1. To take into the mouth, chew, and swallow. 2. To consume. 3. To erode or corrode.
- echo (ěx' - ō) n. 1. Repetition of a sound. 2. One who imitates another. 3. A sympathetic response.

Directions: Questions 11-15 refer to the dictionary entries above. Mark the letter of the correct answer on your answer sheet.

11. Which word means to consume?

- A) easy
- B) eat
- C) echo

12. Which word is a verb?

- A) easy
- B) eat
- C) echo

13. Which word has only one syllable?

- A) easy
- B) eat
- C) echo

14. Which word would come between eat and echo?

- A) endure
- B) ebony
- C) even

15. What word means over and over?

- A) sympathetic
- B) anxiety
- C) repetition

EGYPT
947 Brave, John.
B Along the Nile River. Java, 1971.
231p

Directions: Look at the catalog card above. Mark the letter of the correct answer on your answer sheet.

16. What kind of card is this?

- A) Author
- B) Title
- C) Subject

17. What is the Dewey Decimal number?

- A) 231
- B) 1971
- C) 947

18. What letter would you find the author card under?

- A) B
- B) J
- C) A

19. Who published the book?

- A) Brave
- B) Java
- C) John

20. What does 231p mean?

- A) 231 printed
- B) 231 pictures
- C) 231 pages

Directions: In questions 21-25, mark the letter for the plural form of each word on your answer sheet. (Plural means more than one.)

21. tray

- A) tries
- B) trays
- C) tray's

22. wolf

- A) wolfs
- B) wolf's
- C) wolves

23. life

- A) lives
- B) lifes
- C) life's

24. rodeo

- A) rodeoes
- B) rodeos
- C) rodeo's

25. unit

- A) units
- B) unit's
- C) unites

Directions: For questions 26-30, mark the letter for the correct possessive form of the words on your answer sheet.

26. Shirt belonging to Larry.

- A) Larry's shirt
- B) Larrys shirt
- C) Larrys' shirt

27. Pool belonging to the children.

- A) Children's pool
- B) Childrens' pool
- C) Childrens pool

28. Pen belonging to Chris.

- A) Chris' pen
- B) Chris pen
- C) Chri's pen

29. Flag belonging to America.

- A) Americas flag
- B) America's flag
- C) Americas' flag

30. Dogs belonging to Mario.

- A) Marios' dogs
- B) Mario's dogs
- C) Marios dogs

Directions: For questions 31 and 32, mark the letter of the best long form for each of the contractions on your answer sheet.

31. They've

- A) they have
- B) there
- C) they will
- D) they are

32. We've

- A) we have
- B) we will
- C) we can
- D) we might

Directions: In questions 33-35, pick the correct contraction for each of the word groups. Mark the letter of the correct answer on your answer sheet.

33. I am

- A) I'll
- B) I've
- C) Im'
- D) I'm

Level 1.2.3.3: MASTERY TEST 1
Continued

34. Will not

- A) Willnt'
- B) Won't
- C) Willn't
- D) Wont'

35. Do not

- A) Dont'
- B) Don't
- C) Dont
- D) D'not

Directions: Write a short paragraph at least 5 sentences long.
Use the paper given to you. In this paragraph, tell
someone how to write a paragraph. Submit it to the
instructor for grading.

UNIT MASTERY TEST

Component 1: Academic Competencies

Tier 1.2: Intermediate

Subject Strand 1.2.3: Specific Language Skills

Level 1.2.3.3: Language Skills-3

Unit 1.2.3.3.2: Dictionaries and Card Catalogs

Unit 1.2.3.3.2: MASTERY TEST 1

Directions: Questions 1-7 ask about pronunciation. Beside each word in the first column below is the special spelling showing how the word should be pronounced. Notice which of the two syllables is stressed. Decide which of the other three words in that row has the same vowel sound as the stressed syllable. Mark the correct letter on your answer sheet. Two examples have been done for you.

purvey (pər vā')	A) _____ try	B) <u>X</u> say	C) _____ sir
curfew (kūr fyōō)	A) _____ dirt	B) <u>X</u> sure	C) _____ blew

- | | | | | |
|---|---------------------|----------------|-----------------|---------------|
| 1 | fulsome (fōōl' səm) | A) _____ sum | B) _____ cool | C) _____ pull |
| 2 | doily (doi' lē) | A) _____ tree | B) _____ thrill | C) _____ toy |
| 3 | garish (gār' īsh) | A) _____ spare | B) _____ part | C) _____ risk |
| 4 | louver (lōō' var) | A) _____ blue | B) _____ purr | C) _____ fall |
| 5 | adage (ād' ij) | A) _____ made | B) _____ lad | C) _____ dim |
| 6 | austere (ō stīr') | A) _____ coast | B) _____ twirl | C) _____ fear |
| 7 | stylus (stī' ləs) | A) _____ pile | B) _____ less | C) _____ bill |

Directions: In questions 8-10, given the two dictionary guide words below, mark an A if the listed word would be on that dictionary page. Mark B if the word would be on another page.

ISOLATE - IVY

8. item

- A) same page
- B) different page

9. isle

- A) same page
- B) different page

10. ivory

- A) same page
- B) different page

Directions: Questions 11-20 are about card catalogues. A card catalog has author cards, title cards, and subject cards in it. For each question, decide first whether the author card, title card, or subject card would most quickly give you the answer. Write either A for author, B for title, or C for subject for questions 11, 13, 15, 17, and 19. For questions 12, 14, 16, 18 and 20, write the letter for the correct guide letter or letters of the drawer in which you would look for that card.

Are there any books in the library about Stonehenge?

11. A) Author
B) Title
C) Subject

12. A) K - L
B) S
C) Q - R

How many books does the library have about Yellowstone National Park?

13. A) Author
B) Title
C) Subject

14. A) X - Z
B) U - W
C) N - P

Unit 1.2.3.3.2: MASTERY TEST 1
Continued

15. Does the library have any books that were written by Anne L. Bingham?

- A) Author
- B) Tittle
- C) Subject

16. A) A - B
B) K - L
C) N

Who is the author of the book An Icy Winter?

17. A) Author
B) Title
C) Subject

18. A) H - J
B) A - B
C) U - W

Which of the books written by Paul Varian does the library have?

19. A) Author
B) Title
C) Subject

20. A) N - P
B) K - L
C) U - W

ANSWER KEY
LEVEL MASTERY TEST

Component 1: Academic Competencies
Tier 1.2: Intermediate
Subject Strand 1.2.3: Specific Language Skills
Level 1.2.3.3: Language Skills-3

Level 1.2.3.3: MASTERY TEST 1		Level 1.2.3.3: MASTERY TEST 2	
Unit 1.	Unit 3	Unit 1	Unit 3
1. C	21. B	1. B	21. B
2. A	22. C	2. A	22. A
3. D	23. A	3. D	23. B
4. B	24. B	4. D	24. B
5. B	25. A	5. B	25. A
6. D	26. A	6. B	26. C
7. A	27. A	7. C	27. A
8. D	28. A	8. D	28. C
9. C	29. B	9. A	29. A
10. B	30. B	10. E	30. A
	31. A		31. B
Unit 2	32. A	Unit 2	32. A
	33. D		33. C
11. B	34. B	11. A	34. A
12. B	35. B	12. C	35. C
13. B		13. C	
14. B		14. C	
15. C		15. B	
16. C		16. B	
17. C		17. C	
18. A		18. A	
19. B		19. A	
20. C		20. C	

ANSWER KEY
UNIT MASTERY TEST

Component 1: Academic Competencies
Tier 1.2: Intermediate
Subject Strand 1.2.3: Specific Language Skills
Level 1.2.3.3: Language Skills-3
Unit 1.2.3.3.2: Dictionaries and Card Catalogs

Unit 1.2.3.3.2: MASTERY TEST 1 Unit 1.2.3.3.2: MASTERY TEST 2

Lesson 1.

1. B
2. C
3. A
4. A
5. B
6. C
7. A
8. A
9. B
10. A

Lesson 2.

11. C
12. B
13. C
14. A
15. A
16. A
17. B
18. B
19. A
20. C

Lesson 1.

1. B
2. B
3. C
4. B
5. C
6. A
7. A
8. A
9. B
10. B

Lesson 2.

11. B
12. B
13. C
14. C
15. A
16. B
17. B
18. B
19. A
20. B

LEVEL AND UNIT OBJECTIVES MATRIX

Component 2: Functional Competencies

Tier 2.2: Intermediate

Subject Strand 2.2.1: Intermediate Occupational Knowledge

- Level 2.2.1.1: CAREER CHOICE. Define basic occupational options, the primary characteristics of jobs in those occupations, and the requirements for career entry and advancement. Relate aptitudes and interests to career choices. Describe the role of vocational tests and counseling.
- Unit 2.2.1.1.1: CAREER OPTIONS AND REQUIREMENTS. List the basic career clusters, the characteristics and entry level requirements for jobs within those clusters, and career advancement potential.
- Unit 2.2.1.1.2: CAREER DECISIONMAKING. Define interests and abilities. Identify the different types of interest, aptitude and ability tests. Describe the role of vocational counseling. Describe the factors to consider in making job choices.
- Unit 2.2.1.1.3: INDIVIDUAL CHOICES. Identify individual interests and abilities. Select three career clusters matching personal interests and abilities; identify the preparation requirements, duties and earning potential of jobs within those clusters.
- Level 2.2.1.2: JOB SEARCH. Name different resources available for assistance in finding jobs. List the advantages and disadvantages of each. Read and interpret employment advertisements.
- Unit 2.2.1.2.1: GETTING STARTED. Demonstrate ability to obtain a Social Security card. Cite basic work laws and list permits needed.
- Unit 2.2.1.2.2: JOB SOURCES. List sources for locating job openings. Explain how to access those sources. Cite the advantages and disadvantages of using each source.
- Unit 2.2.1.2.3: WANT ADS. Locate employment ads in newspapers. Interpret them, and identify abbreviations found in classified advertisements.

Level 2.2.1.3: JOB GETTING. Describe how to apply for a job, complete job application forms and construct a resume. Demonstrate interviewing skills.

Unit 2.2.1.3.1: JOB APPLICATIONS. Summarize education and experience in a personal fact sheet. Be able to fill out job application forms.

Unit 2.2.1.3.2: RESUMES. Define and identify the parts of a resume. Be able to write a cover letter.

Unit 2.2.1.3.3: JOB INTERVIEWS. Identify appropriate preparation and behaviors expected by employers when applying for jobs. Learn and demonstrate good interviewing skills.

Level 2.2.1.4: JOB HOLDING. Define the legal and financial aspects of employment. Explain behaviors and attitudes appropriate for job holding and advancement.

Unit 2.2.1.4.1: PAY, BENEFITS, AND WORK LAWS. Read and interpret pay checks. Fill out W-2 and W-4 forms. Define employment rights, unionism, and fringe benefits.

Unit 2.2.1.4.2: JOB BEHAVIOR. Identify workplace rules, and appropriate behaviors and attitudes for job holding. Describe how to deal effectively with supervisors and other employees.

Unit 2.2.1.4.3: CAREER ADVANCEMENT. Identify the factors to consider when changing jobs. Define attributes and skills which may lead to promotion.

LESSON INDEX

Component 2: Functional Competencies

Tier 2.2: Intermediate

Subject Strand 2.2.1: Intermediate Occupational Knowledge

Level 2.2.1.2: Job Search

Unit 2.2.1.2.1: GETTING STARTED

Lesson 2.2.1.2.1.1: SOCIAL SECURITY CARD

Lesson 2.2.1.2.1.2: WORK LAWS, WORK PERMITS

Unit 2.2.1.2.2: JOB SOURCES

Lesson 2.2.1.2.2.1: COMMON JOB SOURCES

Lesson 2.2.1.2.2.2: PRIVATE EMPLOYMENT AGENCIES

Lesson 2.2.1.2.2.3: PUBLIC EMPLOYMENT AGENCIES

Lesson 2.2.1.2.2.4: LOCAL JOB MARKETS

Unit 2.2.1.2.3: WANT ADS

Lesson 2.2.1.2.3.1: WANT ADS

Lesson 2.2.1.2.3.2: FINDING WANT ADS

Lesson 2.2.1.2.3.3: READING WANT ADS

Lesson 2.2.1.2.3.4: JOBS FOR YOU

LESSON ASSIGNMENT

Component 2: Functional Competencies

Tier 2.2: Intermediate

Subject Strand 2.2.1: Intermediate Occupational Knowledge

Level 2.2.1.2: Job Search

Unit 2.2.1.2.2: Job Sources

Lesson 2.2.1.2.2.1: COMMON JOB SOURCES. Name the most common sources for help in finding jobs.

Core Material:

1. American Learning Systems film
Selecting A Job
2. Cambridge Book Company pp. 5-9
Finding Work (Follett Coping Skills Series)
3. Steck-Vaughn Company pp. 12-15
How to Get a Job and Keep It

Supplementary Material:

Print:

1. McGraw-Hill Book Company pp. 70-76
Getting the Job (Career Core Competencies Series)
2. Mafex Associates, Inc. pp. 9-17
Reading Want Ads pp. 45-47
pp. 57-59
pp. 5-25
3. Steck-Vaughn Company pp. 5-25
Working with Others
4. Pitman Learning, Inc. pp. 47-51
Getting a Job

Computer:

1. Computer Curriculum Corporation CCC minicomputer
(CCC) Survival Skills-Employment:
Sources of Job Information Module EM
Lesson 1

- | | |
|---|--|
| 2. Computer Curriculum Corporation
(CCC) <u>Survival Skills-Employment:</u>
- Sources of Job Information | Sony microcomputer
CCP #S7
Module EM, Lesson 2 |
| 3. University of Illinois/CERL
PLATO
<u>Where to Look for Jobs</u> | U of I/CERL
on-line
(j look) |
| 4. MCE, Inc.
<u>Job Readiness-Assessment and
Development</u> | Apple microcomputer
disk 4, CCP #A404 |
| 5. Control Data Corporation (CDC)
PLATO
<u>How to Select and Get a Job,</u>
<u>The Job Search Game</u> | CDC microcomputer
disk htsgjl, or
CDC on-line |
| 6. Aquarius Publishers, Inc.
<u>Part-Time Jobs</u> | Apple Microcomputer
CCP # A803 |

Supplementary Activity:

- | | |
|--|---------------------------------|
| 1. <u>Employment Agencies - 1</u> | Activity Sheet
2.2.1.2.2.1.1 |
| 2. <u>Employment Agencies - 2</u> | Activity Sheet
2.2.1.2.2.1.2 |
| 3. <u>Resources In the Hidden Job
Market</u> | Activity Sheet
2.2.1.2.2.1.3 |
| 4. <u>Sourcing Inventory Form</u> | Activity Sheet
2.2.1.2.2.1.4 |
| 5. Steck-Vaughn Company
<u>Finding A Job</u> | pp. 3-95 |

Lesson 2.2.1.2.2.2: PRIVATE EMPLOYMENT AGENCIES. Define contract and fee paid, and describe the role of a private employment agency.

Core Material:

- | | |
|--|-----------|
| 1. McGraw-Hill Book Company
<u>Getting Ready for the World of
Work (Lifeworks Series)</u> | pp. 65-75 |
|--|-----------|

Supplementary Activity:

- | | |
|--|-----------|
| 1. McGraw-Hill Book Company
<u>Getting Ready for the World of Work
(Lifeworks Series)</u> | pp. 76-78 |
|--|-----------|

Lesson 2.2.1.2.2.3: PUBLIC EMPLOYMENT AGENCIES. Describe the role of the State Employment (Job) Service and compare it to a private agency.

Core Material:

1. McGraw-Hill Book Company pp. 79-85
Getting Ready for the World of Work
(Lifeworks Series)

Supplementary Activity:

1. McGraw-Hill Book Company pp. 86-88
Getting Ready for the World of Work
(Lifeworks Series)

Lesson 2.2.1.2.2.4: LOCAL JOB MARKETS. Describe how to get information about the local job market using newspapers and the telephone directory.

Core Material:

1. Steck-Vaughn Company pp. 19-22
How to Get a Job and Keep It
2. Steck-Vaughn Company pp. 16-20
Working With Others
3. McGraw-Hill Book Company pp. 109-121
Getting Ready for the World of Work
(Lifeworks Series)

Supplementary Activity:

1. McGraw-Hill Book Company pp. 122-124
Getting Ready for the World of Work
(Lifeworks Series)

SUPPLEMENTARY ACTIVITY

Component 2: Functional Competencies

Tier 2.2: Intermediate

Subject Strand 2.2.1: Intermediate Occupational Knowledge

Level 2.2.1.2: Job Search

Unit 2.2.1.2.2: Job Sources

Lesson 2.2.1.2.2.1: Common Job Sources

Supplementary Activity 2.2.1.2.2.1.1: EMPLOYMENT AGENCIES - PART ONE

INTRODUCTION

An employment agency is an office which specializes in placing people in jobs for which they are best suited. Some people are reluctant to use an employment agency because they know very little about its operation. State Employment (Job) Service agencies provide services to their clients free-of-charge. However, private employment agencies charge for their services. The following activity is presented to acquaint you with general information about private employment agencies.

DIRECTIONS

Read the following items. Write the best answer to each one on a separate sheet of paper.

1. The pressures of being unemployed often cause an applicant to consider only one thing -- getting a job. In this situation the applicant will quickly sign an agreement with a private employment agency. Often the applicant fails to read and understand the terms of the contract.

This paragraph means that:

- A. No one should use an employment agency when seeking employment
- B. No one should sign a contract unless he or she understands its terms
- C. No one should sign a contract with an employment agency

2. Any fee charged by an employment agency should be written in your contract or in a schedule provided by the agency. If any oral promises are made, they should be included in the written contract.

This paragraph means that:

- A. All agreements should be recorded in writing
 - B. A fee may be agreed upon after a job is secured
 - C. All oral agreements are binding
3. The applicant may decide not to take a position that is offered. The applicant is obligated to pay a fee if, and when, he or she accepts a position through the agency.

This paragraph means that:

- A. No applicant can refuse a position located for him or her by the agency
 - B. If an applicant refuses a position, the agency will not find another one for him or her
 - C. If an applicant refuses a position, he or she does not have to pay the fee
4. "Fee Paid" positions should be fully explored and understood by the applicant. If a position is listed as "Fee Paid", it should mean the employer has agreed to pay the entire agency fee.

"Fee Paid" means that the fee is paid by:

- A. The applicant
 - B. The employment agency
 - C. The employer
5. The applicant should carefully consider accepting any position. It is the individual's responsibility to select the best job for him or her.

When seeking a job, the applicant should

- A. Accept the first offer that comes along
- B. Follow the agency's advice about accepting a position
- C. Decide for himself or herself which position is suitable

SUBJECT STRAND MASTERY TEST

Component 2: Functional Competencies

Tier 2.2: Intermediate

Subject Strand 2.3.1: Intermediate Occupational Knowledge

Subject Strand 2.2.1: MASTERY TEST 1

Question 1 is based on this ad.

SECRETARY

ILLUSTRATIVE EXAMPLES OF WORK

Takes and transcribes oral dictation consisting of general office correspondence and memoranda; transcribes similar material from a dictating machine; composes and types letters.

Makes postings to various clerical, financial, and other records according to prescribed procedures.

Types reports, speeches, and manuscripts from rough notes.

Serves as general secretary to an organizational unit; receives telephone calls and visitors; provides general information; opens and distributes mail; makes appointments and travel arrangements.

Cuts stenils and operates standard office equipment, including office copier.

Orders pamphlets, booklets, and materials for department.

Maintains expenditure records and operates a filing system.

Performs clerical functions requiring some technical knowledge of work of the organization.

1. According to the job description shown above, which of the following would you NOT expect a person in this job to do?
 - A) Order materials
 - B) Operate a copying machine
 - C) Keep files of letters to and from the company
 - D) Travel out of town to sell something the company makes
2. Allan wants to be an engineer. His grades and test scores show that Allan might not make it through college if he takes engineering courses. If Allan is serious about engineering, which of the following careers should he and his counselor look into?
 - A) Social work
 - B) Dentistry
 - C) Dental hygiene
 - D) Computer technology

Subject Strand 2.2.1: MASTERY TEST 1
Continued

3 years of responsible general experience beyond high school level (4-year college degree may be substituted for this experience in most cases).

2 years of specialized experience. If you select a certain code, you must have a full two years of background in that specific field. Be accurate. We add up the time. (Graduate education may in some cases be substituted for specialized experience if the education is pertinent. Amount required: completion of MA or equivalent degree or completion of two full years of graduate education. Thirty semester hours or 45 quarter hours equal one year.)

5 years total experience

3. Jean Duval and some of her friends want to apply for mid-level jobs with the government. Jean has the announcement shown above. Which one of the following persons is qualified?
- A) Frances, who has a master's degree and worked a year
 - B) Jean, who graduated from college and worked a year
 - C) Denise, who graduated from high school and worked three years
 - D) Ann, who did not graduate from high school and worked five years
4. Doreen Wallace wants to be an accountant some day. She has graduated from high school with good grades in math. Doreen has to go to work and can't afford to go to college. What would be the best thing for her to do?
- A) Apply for a job as an accountant now and go to college later
 - B) Apply for a job with a bookkeeping firm and take an accounting course by mail
 - C) Apply for unemployment if no one will hire her to be an accountant
 - D) Apply for any job she can get and hope for a lucky break some day
5. Arlene Smith is a high school senior. She hasn't decided what to do after high school. She is going to the vocational counselor for help. What can the counselor NOT do for Arlene?
- A) Help her understand her abilities and interests
 - B) Give her advice on her chances in the job market
 - C) Give her tests on different occupations
 - D) Tell her which career to choose

Subject Strand 2.2.1: MASTERY TEST 1
Continued

6. Brenda Sutton has been asked by the counselor to write about herself. The counselor wants to help Brenda find out what kind of work she might like. Which of the following sentences would be the LEAST helpful?

- A) "My brother wanted to go to medical school, but Dad talked him out of it."
- B) "About a year ago, I spent two weeks on my uncle's farm and really enjoyed helping him."
- C) "My grades haven't been too hot this year because the band is taking up my time."
- D) "Last year my dad and I made about \$300 from breeding and selling our dogs."

Questions 7 - 9 relate to the following form.

APPLICATION FOR A SOCIAL SECURITY NUMBER		813	
Last Name		First Name	
YOU WILL USE IN YOUR BUSINESS		YOU WILL USE IN YOUR BUSINESS	
Betsy W.		Reed	
Date Full Name Given		Date of Birth	
Betsy W. Curran		Jan. 3, 1952	
Place of Birth		State	
Canton		Massachusetts	
Mother's Full Name (If Her Birth Year Known)		Your Sex	
Sharon Dee Silvers		Male	
Father's Full Name (Regardless of Whether Living or Dead)		Your Color or Race	
Jason Peter Curran		White	
Have You Ever Before Applied for or Had a Social Security Number, or Tax Account Number?		Social Security Number (If Known)	
No			
Your Address		City	
75 Newark St., Apt. 5		Columbus, Ohio	
Date of Birth		State	
May 1, 1923		Ohio	
Telephone Number		Social Security Number (If Known)	
928-2479			
Signature		Signature	
Betsy W. Reed			

7. What state does Betsy live in now?

- A) Norfolk
B) Massachusetts
C) Ohio
D) Washington

8. Where on the form did Betsy put her dad's name?

- A) Next to number 12
B) Next to number 5
C) Next to number 1
D) Next to number 14

Subject Strand 2.2.1: MASTERY TEST 1
Continued

9. What does "maiden name" mean?
- A) Father's name
 - B) Name at birth
 - C) Married name
 - D) Mother's name
10. Which of the following would NOT be a good source of information for a person looking for a job?
- A) Newspaper classified ads
 - B) State Employment (Job) Service agency
 - C) Chamber of Commerce business office
 - D) Yellow pages of the phone book
11. Bernadette has not had much luck in finding a job. She has been reading the Help Wanted ads every day. Which of the following should Bernadette also do to find a job?
- A) Stay at home and watch TV ads
 - B) Go to the State Employment (Job) Service office every day to read their listings
 - C) Sign up with an employment agency and wait for their call
 - D) Read the big want ad section in the Sunday papers
12. Herbert Ludlow has to find a job right away. He wants to make sure that if there is a job, he will know about it. Which of the following would be the LEAST helpful way for Herbert to find out about jobs as soon as they open up?
- A) Call the big companies and read the want ads in the paper every day
 - B) Go to the State Employment (Job) Service office every day to read their listings
 - C) Sign up with an employment agency and call them often
 - D) Read the big want ad section in the Sunday papers
13. Leonard Green works a rotating shift. What does that mean?
- A) He is not paid for overtime
 - B) He works only at night
 - C) He works in several departments
 - D) He does not go to work at the same time every day

HELP WANTED!

APPLY IN PERSON—
HOURS 4 TO 8 p.m.
JOBS OPEN FOR CLERKS!

14. In this ad, which statement gives you the best clue not to call for an interview?
- A) Jobs open
 - B) Hours 4 to 8 p.m.
 - C) Help wanted
 - D) Apply in person

WANTED—PERSON FOR TEACHER'S AIDE

Must have high school diploma. Be neat, well groomed, and able to cope with children. Would prefer someone with elementary age child or children. Regular working hours 8:00 a.m.—3:00 p.m. Must be willing to attend inservice training programs for one-half day on Saturdays for the first month of employment. Inservice participants will receive compensation for time spent in inservice. Contact R. V. Payne, Principal, Castlerock Elementary School, 1110 South Crest Road, Little Rock, Arkansas or phone for appointment 837-7904.

15. Martha Hanson wants to apply for the job described above. Which one of the following is needed for the job?
- A) She must have children in Castlerock Elementary School
 - B) She must have a high school diploma
 - C) She must pay for additional training
 - D) She must work every Saturday

Subject Strand 2.2.1: MASTERY TEST 1
Continued

BUILDING MAINTENANCE. Full time. We are looking for a conscientious person to be responsible for interior and exterior building appearances. You must be able to perform minor electrical, plumbing, and carpentry repair work. Some knowledge of heating and air conditioning desirable, but will consider training. We offer liberal company benefits including a good retirement hospitalization and life insurance. Write Box W-16, c/o this paper.

SUBSTITUTE LIBRARIAN to work at information desk, irregular hours throughout the year. MLS required, experience in public library reference work preferred. Salary dependent upon experience - \$4.96 - \$5.40 per hour. Apply at Public Library Office, 307 East College Street.

HOST/HOSTESS for Noon hour meal only. 10 a.m.-2 p.m. M-F. Apply Hungry Horse, Hwy 9 North.

COUNTER HELP WANTED for Saturday mornings. Folding clothes and counter work. Wee Wash It, 128 South Fulton.

16. Beth Tyler wants to work part time until some bills are paid. She has three children in school but does not want to pay a babysitter. She has worked only in a grocery store. Which of the jobs shown above would be best for her?
- A) Building maintenance
B) Substitute librarian
C) Host/hostess
D) Counter help
17. Joe is trying to decide between two jobs. One is out of town and pays \$155 a week. The other is in town and pays \$145 a week. It would cost Joe \$3 a day, five days a week, to drive to the out-of-town job. How much can he save by taking the in-town job?
- A) \$15
B) \$10
C) \$5
D) Nothing

Subject Strand 2.2.1: MASTERY TEST 1
Continued

18. Don Pope is a student at a technical school. He goes to school during the day and works in a hobby shop two nights a week. He's looking for a new job with more hours that will still let him go to school. Which of the following jobs would be best for Don?
- A) Office job at an insurance company
 - B) Construction job across town
 - C) Job as instructor in a night school
 - D) Delivery job nights and weekends
19. Della is writing to insurance companies to see if they have any job openings. Which of the following sets of sentences is the best one to use in the letter?
- A) I am interested in being a field representative for your company. References are enclosed.
 - B) My name is Della and I think that I would take a job at your company. I would prefer to work in the personnel office.
 - C) I like people. I like your insurance. I would like to work in your company. Do you have any jobs?
 - D) I have been out of work for three months and I have two children to feed.
20. Bob Wilson prepared these cards to take with him when he goes job hunting. Which one will be the most helpful to him in filling out application forms?

A.

Birthdate: May 12, 1940 Phone number: 384-7810 Address: 871 3rd Street Reference: Reigh Johnson, friend Social Security number: 314-82-3779 Old address: 910 Maple Lane
--

B.

Address: 871 3rd Street Hobbies: Baseball, hunting Aunt Susan's phone number: 386-7108 Groceries: Eggs, butter, jam Employment agency: ACE Employment Co.

C.

Phone number: 384-7810 Social Security number: 314-82-3779 References: Doug Jones (Supervisor), Philip Anderson (Foreman), Reigh Johnson (co-director) - ABC Company, 1824 Park Lane

D.

Social Security number: 314-82-3779 Hobbies: Baseball, hunting Birthdate: 3-12-40 Girlfriend: 387-3192 Best friend: Pete Robinson Driver's license number: 25931

Subject Strand 2.2.1: MASTERY TEST 1
Continued

21. Nina Traylor is filling out a job application. One question is about how many months she held her last job. She held it from the first of September, 1973 through the end of June, 1976. How should Nina answer that question?
- A) 27 months
 - B) 29 months
 - C) 34 months
 - D) 37 months
22. Duane Burrington applied for a job in a textile plant. The manager asked Duane to send him a work history. What can the manager learn about Duane from the work history?
- A) Where Duane's money comes from and how wisely he spends it
 - B) How well Duane works alone and with other people
 - C) How many jobs Duane has had and how long he has kept them
 - D) What kind of family Duane comes from

Personal Summary EUGENE W. THOMAS Address: Education: Experience: Personal Data:

23. Eugene Thomas is making out a summary like the one shown above. Which of the following pieces of information should be put under Personal Data?
- A) Height 5'9", weight 155 pounds, married, two children
 - B) Graduated St. Cloud High School, 1961; attended Ball State University, 1961-63
 - C) Roadway Express 1963-70, UPS 1970-76
 - D) 1407 Kings Court, Baltimore, Maryland

Subject Strand 2.2.1: MASTERY TEST 1
Continued

24. Betty Snider is trying to get a job. She is making a list of qualifications to include in letters of application. She has worked as a clerk-typist at Smith & Company for the last three years. Before that she worked as a clerk at the Baker Company for two years. Which of the following would be the best way for Betty to show her experience?
- A) Experience: Total of five years in clerical jobs mostly in this area
 - B) Experience: I worked for Baker until 1973 when I quit to go to work at Smith for more money.
 - C) Experience: Clerk-Typist, Smith & Company, 1973-Present; Clerk, Baker Company, 1972-73
 - D) I can do nearly any office job, and I learn very quickly
25. Sharon Arthur had an interview at 9:15 a.m. When Sharon arrived for the interview, she noticed the clock showed 10:10. How late was Sharon?
- A) 35 minutes
 - B) 45 minutes
 - C) 55 minutes
 - D) 65 minutes
26. Susan Hill is going for a job interview. Which of the following would be the best thing for her to do to get ready for the interview?
- A) Ask her best friend to go with her
 - B) Think of ways to flirt with the person asking the questions
 - C) Think of some of the questions she may be asked and how she might answer them
 - D) Call the company where she will be interviewed and ask how long the interview will take
27. Dennis Taylor had an interview with the personnel director for the Overdrive Transfer Company. She asked him why he and left his last job after only five months. Dennis had had an argument with his boss and quit. What should Dennis have told the personnel director?
- A) The company went out of business
 - B) He was laid off because of cold weather
 - C) He was forced out when he wouldn't join the union
 - D) He and his boss disagreed on an important matter

Subject Strand 2.2.1: MASTERY TEST 1
Continued

\$92.00	20.70			112.70	6.59	15.79	8.50		81.83	3/31
REGULAR	OVER-TIME			GROSS PAY	F.I.C.A.	WITH-HOLDING TAX	INS.		NET PAY	PERIOD ENDING

PAY STATEMENT - DETACH AND RETAIN

28. Pat Barber's pay statement from March 31 is shown above. In which space would you look to see how much Pat made before deductions?
- A) Regular
 - B) Net Pay
 - C) F.I.C.A.
 - D) Gross Pay
29. Crane operators at Morgan Iron & Steel are having a wildcat strike. Which of the following is true?
- A) The crane operators are trying to get into a union
 - B) The union has ordered only crane operators to go on strike
 - C) The full union has not approved the crane operators' strike
 - D) The crane operators are having a work slowdown
30. Sam Miller was fired from his job as a cook at Northeast High School. Sam is 63 years old and thinks that he may have lost his job because of his age. Where should Sam go for help?
- A) Civil Rights Commission
 - B) Credit Company
 - C) Community Center
 - D) Insurance Company

BAKER MANUFACTURING CO.

1. Do not punch anyone's card but your own.
2. Persons reporting to work more than 7½ minutes late will be docked for 30 minutes' pay.
3. All overtime must be approved by supervisor in advance.

31. Edna Brumley works for the Baker Manufacturing Company. She wants to earn some extra money this week by working four hours overtime. According to the sign shown above, what should Edna do?
- A) Ask her boss to let her work an extra hour each day for four days
 - B) Come to work at the regular time, and go home four hours late
 - C) Come to work four hours early, and go home at the regular time
 - D) Ask the people on the next shift if they need help
32. Sandy Miller is working at the Bowles Company and has her lunch break from 11:45 a.m. to 12:15 p.m. How long does she get for lunch?
- A) 15 minutes
 - B) 30 minutes
 - C) 45 minutes
 - D) 60 minutes
33. Dave has been having trouble getting all his work done. It seems as though there are too many different things to do and not enough time to do them all. What is the best thing for Dave to do about it?
- A) Figure out some good reasons to give his boss when the work isn't done
 - B) Give some of his work to other people to do on their breaks
 - C) Leave some of his work unfinished to show how overworked he is
 - D) Arrange his work so that the most important things come first and the least important come last

Subject Strand 2.2.1: MASTERY TEST 1
Continued

34. Gus applied for a better job at the place where he works. Pete got the job because he had more seniority than Gus. Why didn't Gus get the job?
- A) He doesn't work as hard as Pete does
 - B) He hasn't worked there as long as Pete has
 - C) He isn't as fast as Pete is
 - D) He didn't do as well on the test as Pete did
35. Nancy Dewes was told by her boss that if she could make 15 percent more boxes each hour, she could get a raise. Nancy now makes 40 boxes an hour. How many boxes will Nancy have to make in an hour to get a raise?
- A) 15
 - B) 46
 - C) 55
 - D) 63

EMPLOYEE EVALUATION FORM					
Overall Evaluation	Poor ☐	Adequate ☒	Fair ☐	Good ☐	Excellent ☐
Recommendation	Dismiss ☐	Retain ☒	Promote ☐		
Comments: <u>I had to stretch the point to call Jones an</u> <u>adequate employee. He spends most of his time out</u> <u>with his car. He will work when I want and</u> <u>and I'm through. Definitely not ready for promotion.</u>					
			Joe Benadil Signature of Supervisor		
Robert B. Jones _____ have read the evaluation of me and agree/disagree with it. (If you disagree with the evaluation recommendations, or comments, explain why.)					
_____ _____ _____					
Robert B. Jones Signature of Employee					

Subject Strand 2.2.1: MASTERY TEST 1
Continued

36. Robert Jones does not agree with his boss's evaluation of him. He has to fill out the form shown above. Which would be the best way for Robert to fill out the rest of the form?
- A) Mr. Benadril is a liar. I always do my work. He's just mad at me because I won't do everything just to please him.
 - B) Benadril is always on my back. I can't even go for a smoke without him yelling at me. I think he ought to be fired.
 - C) I don't see where he gets off calling me a poor employee. I'm no worse than any of the other guys in the department.
 - D) Personnel records will show that I was out sick only one day. I took the allowed two breaks a day, fifteen minutes each.

LEVEL MASTERY TEST

Component 2: Functional Competencies

Tier 2.2: Intermediate

Subject Strand 2.2.1: Intermediate Occupational Knowledge

Level 2.2.1.2: Job Search

Level 2.2.1.2: MASTERY TEST 1

Questions 1-4 are based on this form.

APPLICATION FOR A SOCIAL SECURITY NUMBER		DO NOT WRITE IN THE SPACES BELOW	
1	Full Name <u>Betsy W. Reed</u>	6	Date of Birth <u>March 3, 1972</u>
2	First Name <u>Betsy W</u>	7	Place of Birth <u>Canton, Norfolk, Massachusetts</u>
3	Last Name <u>Curran</u>	8	Are you a U.S. citizen? ☒ Yes ☐ No
4	Address <u>Sharon Dee Silvers</u>	9	Are you a U.S. resident? ☒ Yes ☐ No
5	City <u>Jason Peter Curran</u>		
10	State <u>Ohio</u>		
11	Zip <u>43021</u>		
12	Have you ever before applied for a Social Security Number? ☒ Yes ☐ No		
13	When did you last apply? <u>May 1, 1983</u>		
14	Signature <u>Betsy W. Reed</u>		

1. Why would Betsy fill out a form like this?
 - A) to get a Social Security number
 - B) to get a work permit
 - C) to get a birth certificate

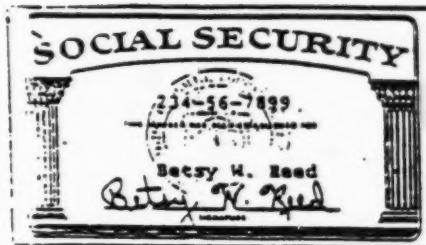
2. What state does Betsy live in now?
 - A) Norfolk
 - B) Massachusetts
 - C) Ohio

3. Where on the form did Betsy put her dad's name?
 - A) next to number 12
 - B) next to number 5
 - C) next to number 1

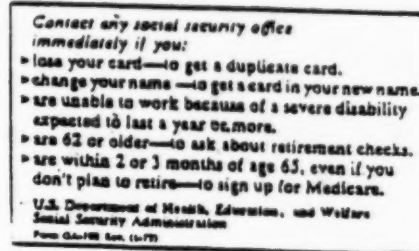
4. What does "maiden name" mean?

- A) father's name
- B) name at birth
- C) married name

Question 5 is about this card:



front side



back side

5. What is Betsy Reed's Social Security number?

- A) 234-56-7899
- B) 7899
- C) OA-702

6. Why is it important to get a Social Security number?

- A) you need it to take out library books
- B) you need it to show to the police
- C) a boss cannot pay you without one

7. Mark applied for a job at a store. The store manager told him he could not work there because he is black. What law did the store manager break?

- A) equal employment opportunity
- B) minimum wage law
- C) social security law

8. Which of the following is not a source of employment?

- A) Yellow pages
- B) State Employment (Job) Service
- C) a resume
- D) private employment agency

9. Word-of-mouth information about job openings:
- A) rarely leads to getting a job
 - B) is a good way to learn about some jobs
 - C) should never be used in a job search
 - D) is almost always accurate and reliable
10. Which of these sources of job information will probably give the largest number of possible openings?
- A) family and friends
 - B) State Employment (Job) Service
 - C) vocational counselors
 - D) bulletin boards
11. The most expensive way to get help in finding a job is to go to:
- A) a school counselor
 - B) company personnel offices
 - C) private employment agencies
 - D) State Employment (Job) Service
12. Which is a disadvantage of using a private employment agency to find a job?
- A) few openings for unskilled workers
 - B) free services
 - C) lists part-time jobs only
 - D) slow advancement
13. Which of the following best describes the advantages of using the State Employment (Job) Service?
- A) no cost, job counseling, skills testing, lengthy listings of job openings
 - B) little red tape to go through, lots of jobs for unskilled workers, cost based on ability to pay
 - C) special services for skilled workers, no crowds, contact with all possible employers in the area
 - D) used by all employers, lists immediate openings, no forms to fill out, no cost
14. The State Employment (Job) Service is a useful source of job information because:
- A) all job openings in the state must be listed
 - B) jobs outside of the immediate local area may be listed
 - C) people working for the state agency are more qualified than those working for private employment agencies
 - D) all of the above

15. The Help Wanted job ads tell you:
- A) where to get help in finding a job
 - B) what jobs are open that day
 - C) where you can get a new car
 - D) how to write an ad saying you need a job
16. To find where the want ads are in a newspaper, you should:
- A) ask your teacher or counselor
 - B) go to the business pages
 - C) look at the Index
 - D) call the newspaper office
17. Which group of jobs is listed in alphabetical order?
- A) teacher, secretary, upholsterer
 - B) artist, cook, beautician
 - C) bellhop, cab driver, dishwasher
 - D) hotel maid, desk clerk, porter

Questions 18 & 19 are based on this HELP WANTED AD:

SALES. PT or FT. no evns.
HS grad or exp. Sal to
\$6. Must have valid dr.
lic. Refs. req'd.
Call 593-6162 4-6 wkdys.

18. To apply for this job, you should:
- A) telephone the next morning
 - B) be willing to work weekends
 - C) drive a car
 - D) all of the above
19. "Refs. Req'd" means that:
- A) you should have had experience
 - B) people who know you will be contacted
 - C) you must own a car
 - D) you should be responsible

Questions 20 is based on this "Help Wanted" Ad.

TEMP. SEC. for local emp. All fees pd. Sal. neg;
top \$ for 80+ WPM and lang. skills. Full med. ben. Call
World Wide Employment Agency. 338-3000.

20. This job offers:

- A) full-time career work
- B) \$80.00 a week pay
- C) a health plan paid by the company
- D) training in other languages

UNIT MASTERY TEST

Component 2: Functional Competencies

Tier 2.2: Intermediate

Subject Strand 2.2.1: Intermediate Occupational Knowledge

Level 2.2.1.2: Job Search

Unit 2.2.1.2.2: Job Sources

Unit 2.2.1.2.2: MASTERY TEST 1

1. Which of the following is not a source of employment?
 - A) Yellow Pages
 - B) state Employment (Job) Service
 - C) a resume
 - D) private employment agency
2. Word-of-mouth information about job openings:
 - A) rarely leads to getting a good job
 - B) is a good way to learn about some jobs
 - C) should never be used in a job search
 - D) is almost always accurate and reliable
3. Which of these sources of job information will probably give the largest number of possible openings?
 - A) family and friends
 - B) State Employment (Job) Service offices
 - C) vocational counselors
 - D) bulletin boards
4. Mike tells Karen that he is going to find a job by looking at signs in windows. Karen tells him one bad thing about doing that is:
 - A) few employees use them
 - B) they are hard to read and interpret
 - C) information is not always reliable
 - D) red tape
5. The most expensive way to get help in finding a job is to go to a:
 - A) school counselor
 - B) company personnel office
 - C) private employment agency
 - D) State Employment (Job) Service agency

6. Which is a disadvantage of using a private employment agency to find a job?
 - A) few openings for unskilled
 - B) free services
 - C) list part-time jobs only
 - D) slow advancement
7. Which of the following best describes the advantages of using the State Employment (Job) Service?
 - A) no cost, job counseling, skills testing, listings of job openings
 - B) little red tape to go through, lots of jobs for unskilled workers, cost based on ability to pay
 - C) special services for skilled workers, no crowds, contact with all possible employers in the area
 - D) used by all employers, list immediate openings, no forms to fill out, no cost
8. Linda reads the want ads every day. What else can she do to find a job?
 - A) move to another state
 - B) go to the State Employment (Job) Service
 - C) watch TV ads
 - D) borrow money
9. The State Employment (Job) Service is a useful source of job information because
 - A) all job openings in the state must be listed
 - B) jobs outside of the immediate local area may be listed
 - C) people working for public agencies are more qualified than those working for private agencies
 - D) all of the above
10. Which is an advantage of using bulletin boards to find a job?
 - A) not always accessible
 - B) personal contact can help
 - C) often list unskilled jobs
 - D) saves you time

ANSWER KEY
SUPPLEMENTARY ACTIVITY

Component 2: Functional Competencies

Tier 2.2: Intermediate

Subject Strand 2.2.1: Intermediate Occupational Knowledge

Level 2.2.1.2: Job Search

Unit 2.2.1.2.2: Job Sources

Lesson 2.2.1.2.2.1: Common Job Sources

Supplementary Activity 2.2.1.2.2.1.1: EMPLOYMENT AGENCIES -
PART ONE .

1. B
2. A
3. C
4. C
5. C

ANSWER KEY
SUBJECT STRAND MASTERY TEST

Component 2: Functional Competencies

Tier 2.2: Intermediate

Subject Strand 2.2.1: Intermediate Occupational Knowledge

Subject Strand 2.2.1: MASTERY TEST 1

Level 1

- 1. D
- 2. D
- 3. A
- 4. B
- 5. D
- 6. A

Level 2.

- 7. C
- 8. B
- 9. B
- 10. C
- 11. B
- 12. D
- 13. D
- 14. D
- 15. B
- 16. C
- 17. C
- 18. D

Level 3

- 19. A
- 20. C
- 21. C
- 22. C
- 23. A
- 24. C
- 25. C
- 26. C
- 27. D

Level 4

- 28. D
- 29. C
- 30. A
- 31. A
- 32. B
- 33. D
- 34. B
- 35. B
- 36. D

ANSWER KEY
UNIT MASTERY TEST

Component 2: Functional Competencies

Tier 2.2: Intermediate

Subject Strand 2.2.1: Intermediate Occupational Knowledge

Level 2.2.1.2: Job Search

Unit 2.2.1.2.2: Job Sources

Unit 2.2.1.2.2: MASTERY TEST 1

Unit 2.2.1.2.2: MASTERY TEST 2

Lesson 1

1. C
2. B
3. B
4. A

Lesson 1

1. B
2. D
3. C
4. A

Lesson 2

5. C
6. A

Lesson 2

5. D
6. A

Lesson 3

7. A
8. B
9. B

Lesson 3

7. B
8. D
9. A

Lesson 4

10. C

Lesson 4

10. D

ANSWER KEY
LEVEL MASTERY TEST

Component 2: Functional Competencies

Tier 2.2: Intermediate

Subject Strand 2.2.1: Intermediate Occupational Knowledge

Level 2.2.1.2: Job Search

Level 2.2.1.2: MASTERY TEST 1

Level 2.2.1.2: MASTERY TEST 2

Unit 1

1. A
2. C
3. B
4. B
5. A
6. C
7. A

Unit 2

8. C
9. B
10. B
11. C
12. A
13. A
14. B

Unit 3

15. B
16. C
17. C
18. C
19. B
20. C

Unit 1

1. C
2. B
3. B
4. C
5. B
6. C
7. A

Unit 2

8. B
9. C
10. A
11. D
12. D
13. A

Unit 3

14. C
15. A
16. C
17. B
18. C
19. A
20. A